IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

This PHOTOFACT Folder Set is

WIRE-SEALED FOR YOUR PROTECTION

to guarantee completeness of contents

DO NOT ACCEPT IF SEAL HAS BEEN BROKEN

TO OPEN ***JUST DO THIS:***

1

Take hold of the Set with both hands. Place your thumbs directly under the top wire-seal; then, divide the contents equally by putting your thumbs midway through the thickness of the Set. Now, pull the two sections apart at the top, firmly.

2

Repeat this process, pulling close to the wire-seal at the bottom, so that the set is now divided into two equal parts.

3

Continue this "pulling-apart" process with the section in which the wire-seals remain, dividing it in half.

4

Finally, remove the wire-seals left in the last section; this can easily be done with your fingernail or any sharp instrument.

Your "Safety-Sealed" PHOTOFACT Set is now ready for profit-making use . . .

IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

The PHOTOFACT® Servicer

SET 484 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ MAY 1960

CONTENTS PHOTOFACT SET 484

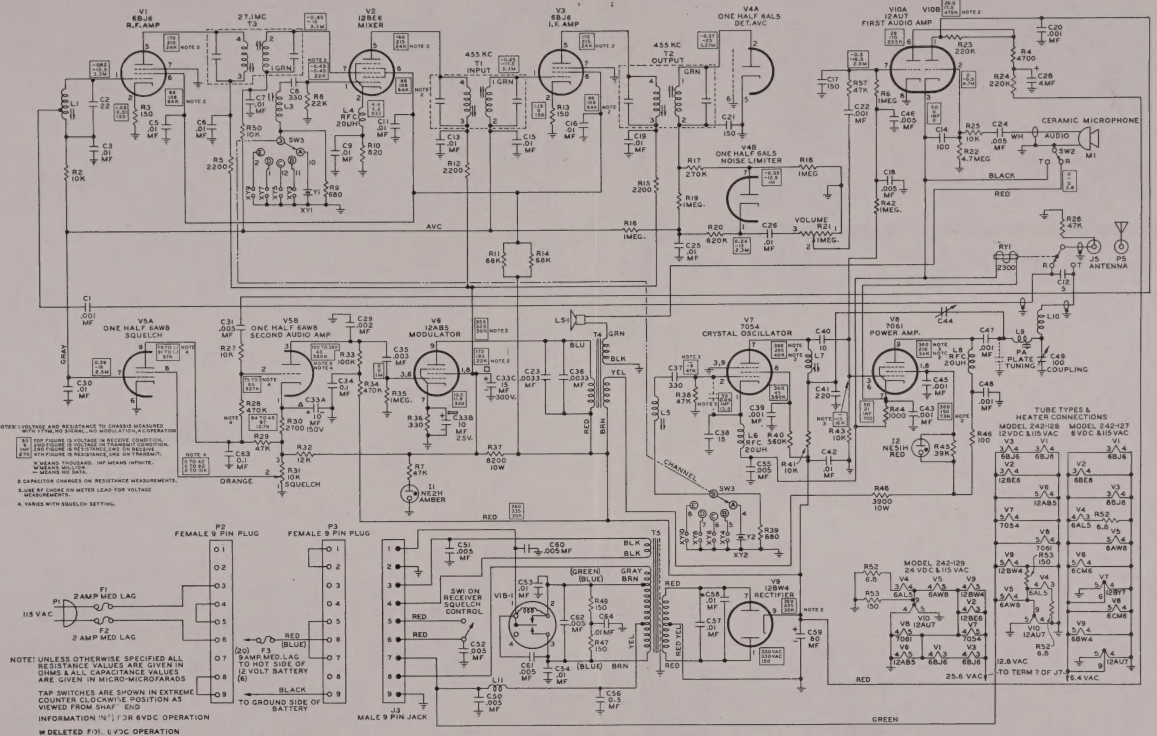
TRADE NAME AND MODEL	SET AND FOLDER NO.
TELEVISION RECEIVERS	
OLYMPIC	
CB206, U, CB207, U, CB214, U, CD111P, PU, CD139, U, CD208, U, CD209, U, CD209P, PU, CD210P, PU, CD211D, DU, CF440, U, CF441, U, KB216, U, KD218, U, KD219, U, KD221, U, KD222P, PU, KD223, U, KH436, U, KH437, U, TB201, U, TD203, U (Ch. JB, JBU, JD, JDU, JF, JFU, JH, JHU, 144, 146, 147, 149, 153)	484-1
PHILCO	
H3046AQ, GL, T, H3047GC, TC, WC, H3055BL, L, WL, UH3046AQ, GL, T, UH3047GC, TC, WC, UH3052BL, L, WL (Ch. 10H25, 10H25R, 10H25U)	484-2
PRODUCTION CHANGE BULLETIN	
ADMIRAL Television Rec.	
Ch. 18D6C, 18D6T	484-3
ADMIRAL Television Rec.	
Ch. 20B6C, CB, T, TB, 20C6C, 20E6C, 20UB6C, CB, T, TB, 4C4, 8R1	484-3
MOTOROLA Television Rec.	
21P1BD, 21P1BRD, 21P1GYD (Ch. PTS-546)	484-3
OTHER EQUIPMENT	
ATR	
TR1279-6V, TR1279-12V, 1279-6V, 1279-12V	484-4
AUTOMATIC	
CU-39, UN-40	484-5
CAPITOL	
S-923, S-925	484-6
CONTINENTAL	
SW-7	484-7
CORONADO	
RA48-9903A	484-8
CURTIS MATHES	
MD712, MD912, MD1012, MD1412, MD1512, MD1612, MD1712 (Ch. 12B)	484-9
EICO	
HF-30	484-10
EMUD	
Stereo Box	484-11
HOFFMAN	
B8007, M8007, SP8007, W8007 (Ch. 1130)	484-12
OLYMPIC	
C-45	484-13
PHILCO	
H-1814, H-1816, H-1916	484-14
SILVERTONE	
25, 26 (Ch. 132.48400)	484-15
SYLVANIA	
4703 Series (Ch. 1-635-1)	484-16
WEBCOR	
1960 (Ch. 14X311-1, 14X312-1)	484-17
ZENITH	
C724G, L, P (Ch. 7C02)	484-18

This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

Coronado Models
15RA38-43-8238A,
15RA38-43-8239A

Johnson Model
Viking "Messenger"



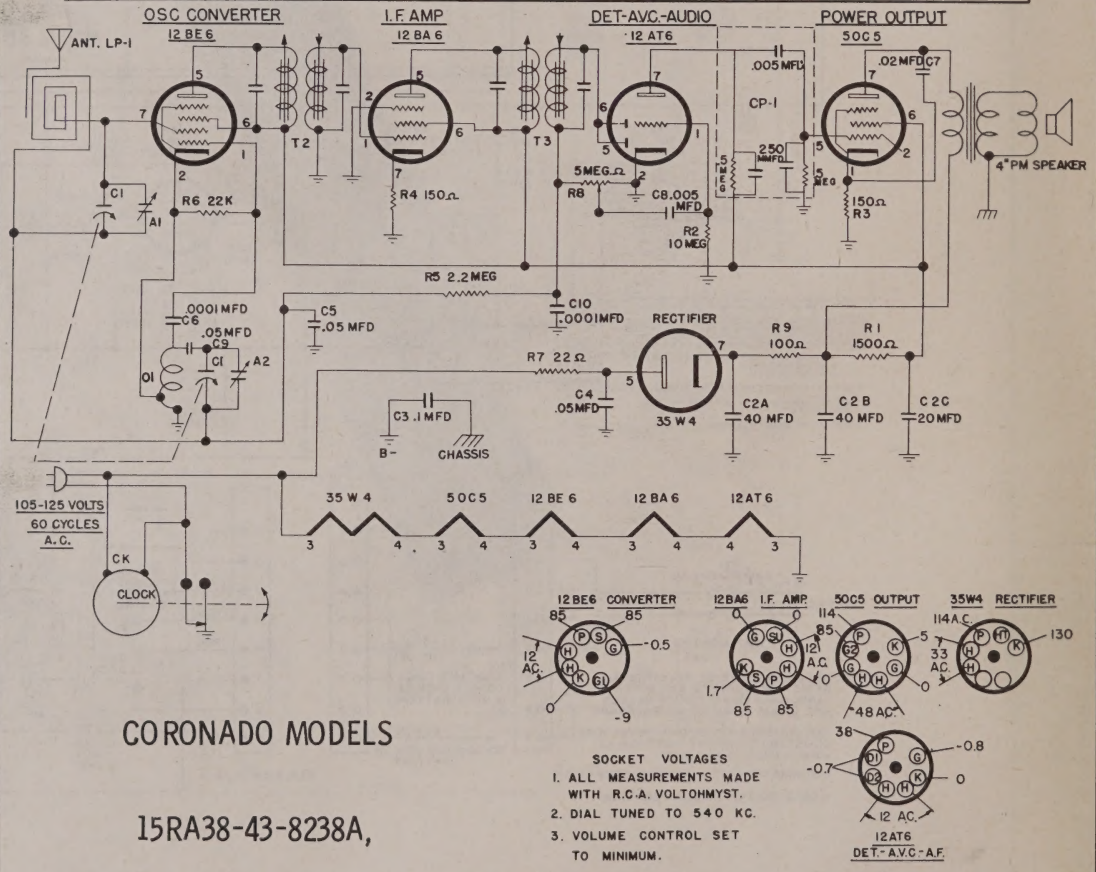
JOHNSON MODEL VIKING "MESSENGER"

Schematic Diagram Courtesy of E. F. Johnson Company Inc.

ALIGNMENT PROCEDURE

- Output meter across voice coil (3.2 ohm)
- Volume control at maximum for all adjustments.
- Align for maximum output. Reduce input as needed to keep output near 1.28 volts (0.5 watt).

SIGNAL GENERATOR				*TUNER SETTING*	*ADJUST TRIMMERS TO MAXIMUM OUTPUT (in order shown)*
Frequency	*Coupling Capacitor*	*Connections to Receiver*	*Ground Connection*		
455 kc	0.1 mfd.	12BE6 grid	B—	Rotor full open (Plates out of mesh)	Input and output slugs of IF cans
1650 kc	0.1 mfd.	12BE6 grid	B—	Rotor full open (Plates out of mesh)	Oscillator trimmer A2
1500 kc		Radiating Loop		1500 kc	Antenna trimmer A1



CORONADO MODELS

15RA38-43-8238A,

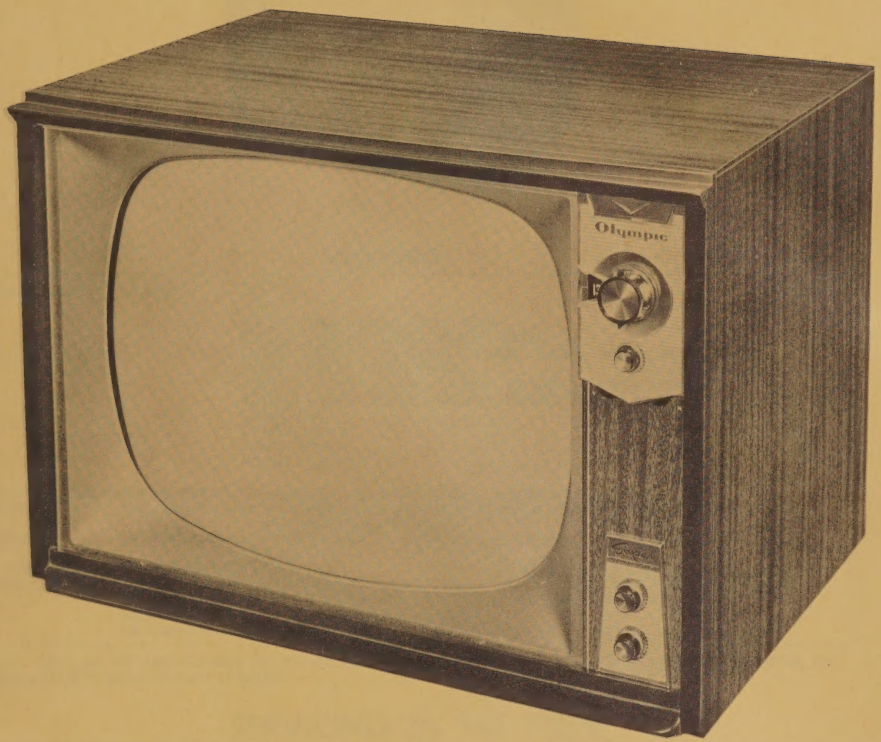
15RA38-43-8239A

Schematic Diagram Courtesy of Gamble-Skogmo Inc.

PHOTOFACT® Folder

OLYMPIC CHASSIS JB, JBU, JD, JDU, JF,
JFU, JH, JHU, 144, 146, 147, 149, 153

OLYMPIC CHASSIS JB, JBU, JD, JDU, JF,
JFU, JH, JHU, 144, 146, 147, 149, 153



OLYMPIC CHASSIS JB, JBU, JD, JDU, JF,
JFU, JH, JHU, 144, 146, 147, 149, 153

MODEL TB201 (Ch. JB)

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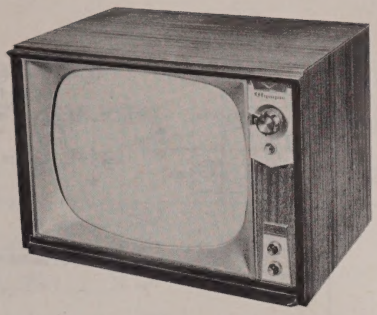
PHOTOFACT® Folder

OLYMPIC CHASSIS JB, JBU, JD, JDU, JF, JFU, JH, JHU, 144, 146, 147, 149, 153

OLYMPIC CHASSIS JB, JBU, JD, JDU, JF, JFU, JH, JHU, 144, 146, 147, 149, 153



MODEL TB201 (Ch. JB)

TRADE NAME	OLYMPIC	MODELS	CHASSIS
		CB206, CB207, CB214, KB216, TB201	JB
		CB206U, CB207U, CB214U, KB216U, TB201U	JBU
		CD111P, CD139, CD208, CD209, CD209P, CD210P, CD211D, KD218, KD219, KD221, KD222P, KD223, TD203	JD
		CD111PU, CD139U, CD208U, CD209U, CD209PU, CD210PU, CD211DU, KD218U, KD219U, KD221U, KD222PU, KD223U, TD203U	JDU
		CF440, CF441	JF
		CF440U, CF441U	JFU
		KH436, KH437	JH
		KH436U, KH437U	JHU

MANUFACTURER Olympic Radio & Television Inc., 34-01 38th Avenue, Long Island City 1, N.Y.
TYPE SET Television Receiver (Some Models with FM-AM Receiver Including Stereo Amplifier and 4 Speed Automatic Record Changer)
TUBES TV: VHF-Fifteen, FM-AM Receiver Ch. 144-Eight, AM Receiver Ch. 146 or 153 -Five, FM-AM Receiver Ch. 147 or 149 -Ten
POWER SUPPLY 110-120 Volts AC, 60 Cycle RATING TV: 155 Watts, 1.35 Amp. @ 117 Volts AC (Less UHF)
TUNING RANGE TV: Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)
FM-AM Receiver Ch. 144: FM: 87-109MC, IF 10.7MC AM: 535-1700KC, IF 455KC
AM Receiver Ch. 146 or 153: 540-1620KC, IF 455KC
FM-AM Receiver Ch. 147 or 149: FM: 87.5-108.5MC, IF 10.7MC AM: 540-1620KC, IF 455KC

"KB", "KD", or "KH" MODELS MAY USE FM-AM RECEIVER CHASSIS 144, 147, 149, OR AM RECEIVER CHASSIS 146, 153, WITH RECORD CHANGER PART #RX26202-1.

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 2 push-on type knobs from the front. Remove 5 screws holding trim. Tilt glass out and remove .

FUSE

One fuse is used for Horizontal Sweep Circuit protection. (For location, see "Tube Placement Chart".)
One fuse wire is used for filament protection and one for low voltage supply protection. (For location, see M3 & M4, "Chassis - Bottom View".)

TUNER OSCILLATOR ADJUSTMENTS

To touch-up the VHF Oscillator, remove Channel Selector, Fine Tuning knobs, and escutcheon.

AGC

The AGC may be varied by means of a Local-Distant switch. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency slug. (For location, see "Tube Placement Chart".)

HORIZONTAL DRIVE

The horizontal drive may be varied by a Horizontal Size trimmer. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Clarifier Adjustment for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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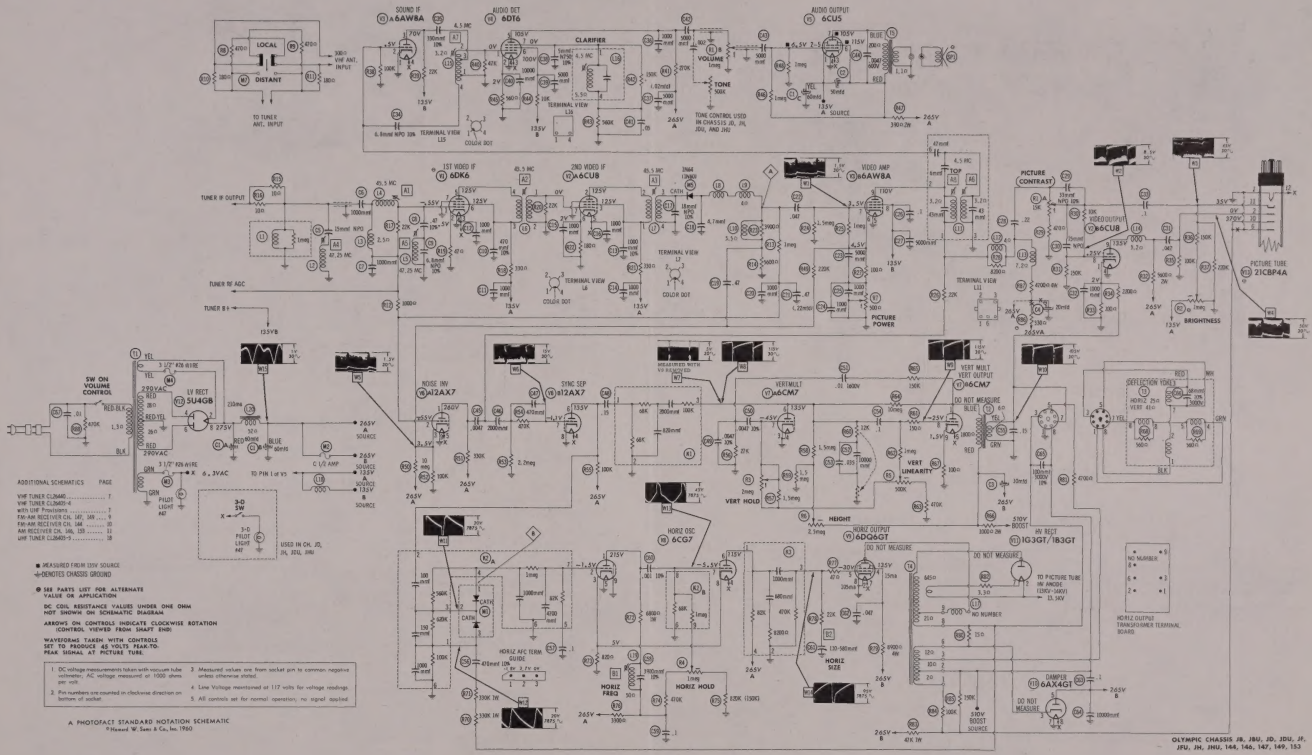
JA609

SET484 FOLDER 1


SOUND IF
6AW8A
AUDIO DET
6DT6
AUDIO OUTPUT
6CU5
LOCAL
DISTANT
TO TUNER ANT. INPUT
300Ω VHF ANT. INPUT
CLARIFIER
VOLUME
TONE
TERMINAL VIEW
COLOR DOT
TONE CONTROL USED IN CHASSIS JD, JH, JDU, AND JHU
1ST VIDEO IF
6DK6
2ND VIDEO IF
6CU8
VIDEO AMP
6AW8A
TUNER IF OUTPUT
TUNER RF AGC
TUNER B+
PICTURE CONTRAST
VIDEO OUTPUT
6CU8
BRIGHTNESS
PICTURE TUBE
21CBP4A
PICTURE POWER
SW ON VOLUME CONTROL
U1 RECT
5U4GB
290VAC
6.3VAC
TO PIN 1 of V5
NOISE INV
12AX7
SYNC SEP
12AX7
VERTMULT
6CM7
VERT MULT
VERT OUTPUT
6CM7
VERT HOLD
HEIGHT
VERT LINEARITY
DO NOT MEASURE
HORIZ OSC
6CG7
HORIZ OUTPUT
6DQ6GT
HV RECT
1G3GT/1B3GT
TO PICTURE TUBE HV ANODE (12KV-16KV) 15.5KV
HORIZ AFC FILTER GUIDE
HORIZ FREQ
HORIZ HOLD
HORIZ SIZE
DAMPER
6AX4GT
HORIZ OUTPUT TRANSFORMER TERMINAL BOARD
ADDITIONAL SCHEMATICS PAGE
VHF TUNER CL26A6 7
VHF TUNER CL26D1-4 7
with UHF Provisions
FM-AM RECEIVER CXL 160, 169 8
FM-AM RECEIVER CXL 164 10
AM RECEIVER CXL 156, 158 12
UHF TUNER CL26D1-5 18
USED IN CH. JD, JH, JDU, JHU
3-D PILOT LIGHT #47
MEASURED FROM 135V SOURCE
DENOTES CHASSIS GROUND
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 45 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
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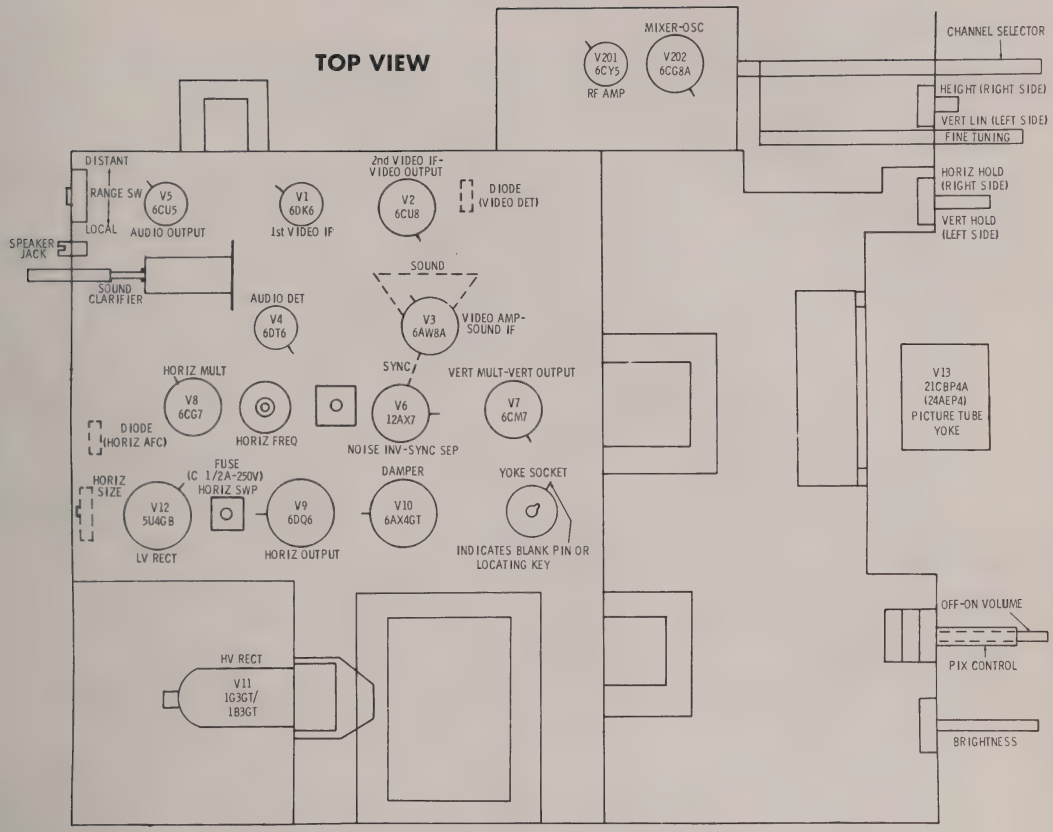
OLYMPIC CHASSIS JB, JBU, JD, JDU, JF, JFU, JH, JHU, 144, 146, 147, 149, 153

TUBE PLACEMENT CHART



OLYMPIC CHASSIS JB, JBU, JD, JDU, JF, JFU, JH, JHU, 144, 146, 147, 149, 153

FOLDER 1

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse Wire (LV Supply), Fuse Wire (F11), V12

SWEEP FAILURE
No raster, has sound V8, V9, V10, V11, V13, Fuse (Swp)
No vertical deflection V7
Poor vert. linearity or foldover V7
Poor horiz. linearity or foldover V8, V9, V10
Narrow picture V8, V9, V10, V12
Vert. off freq. V7
Horiz. off freq. Diode (Horiz. AFC), V8

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, Diode (Video Det.), V3
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V2, V3, V13
Has pic, no sound V3, V4, V5

SYNC FAILURE
No vert. sync V6
No horiz. sync V6
No vert. or horiz. sync V6

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: Mixer Plate Coil, Al thru A7. . GENERAL CEMENT #8282, 8606, 8606L, 9295
WALSCO #2526, 2543, 2544, 2545
A8 ..... GENERAL CEMENT #8721, 8722
WALSCO #2519

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	Not used	44.5MC (Unmod)	Any non-interfering channel	USE VTVM. DC probe thru 100K to point (A). Common to chassis.	Mixer Plate Coil	Use only enough generator output to provide a usable indication on VTVM. Adjust for maximum deflection.
2.	"	"	45.5MC	"	"	A1	"
3.	"	"	43.5MC	"	"	A2	"
4.	"	"	45.5MC	"	"	A3	"
5.	"	"	47.25MC	"	"	A4, A5	Adjust for MINIMUM deflection.
6.	"	44MC (10MC Swp)	43.25MC 45.75MC 47.25MC	"	Vert. Amp. thru 100K to point (A). Low side to chassis.		Use only enough sweep generator output to provide a usable pattern on scope. Check for response similar to Fig. 1 with markers as indicated. If necessary, retouch Mixer Plate Coil and A1 thru A5 for desired response.

SOUND IF ALIGNMENT

Connect the DC probe of the VTVM thru a 1meg. resistor to pin 1 (grid) of the Audio Detector. Common to chassis. Turn the set on and tune in a strong TV signal. Adjust A6 and A7 for maximum deflection on the VTVM. Disconnect the VTVM and adjust the Sound Clarifier for maximum undistorted sound. Retouch A6 and A7 for maximum volume.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and set Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible. Adjust A8 for MINIMUM beat interference.

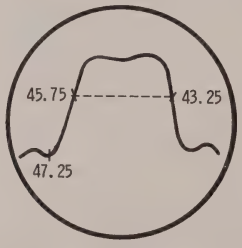
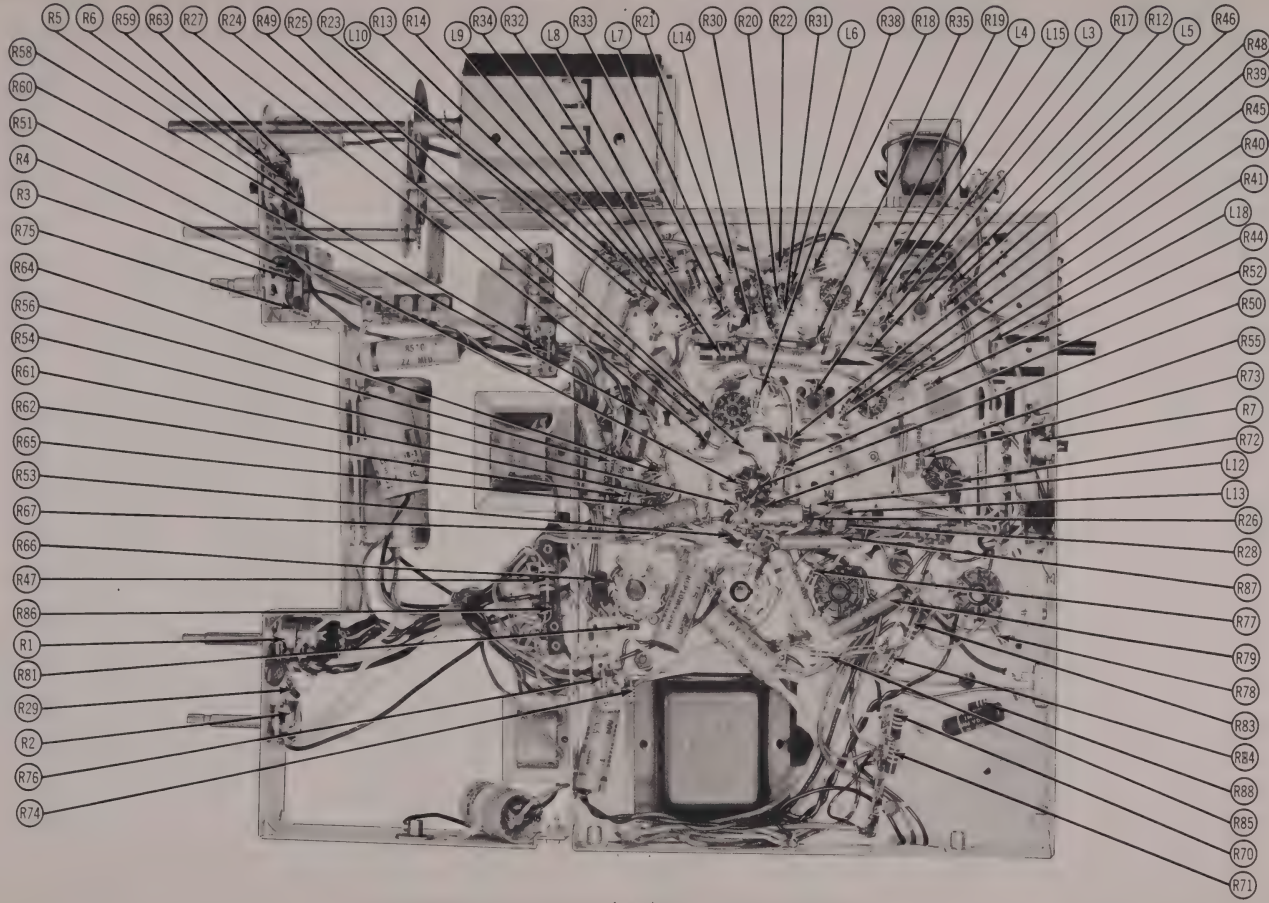
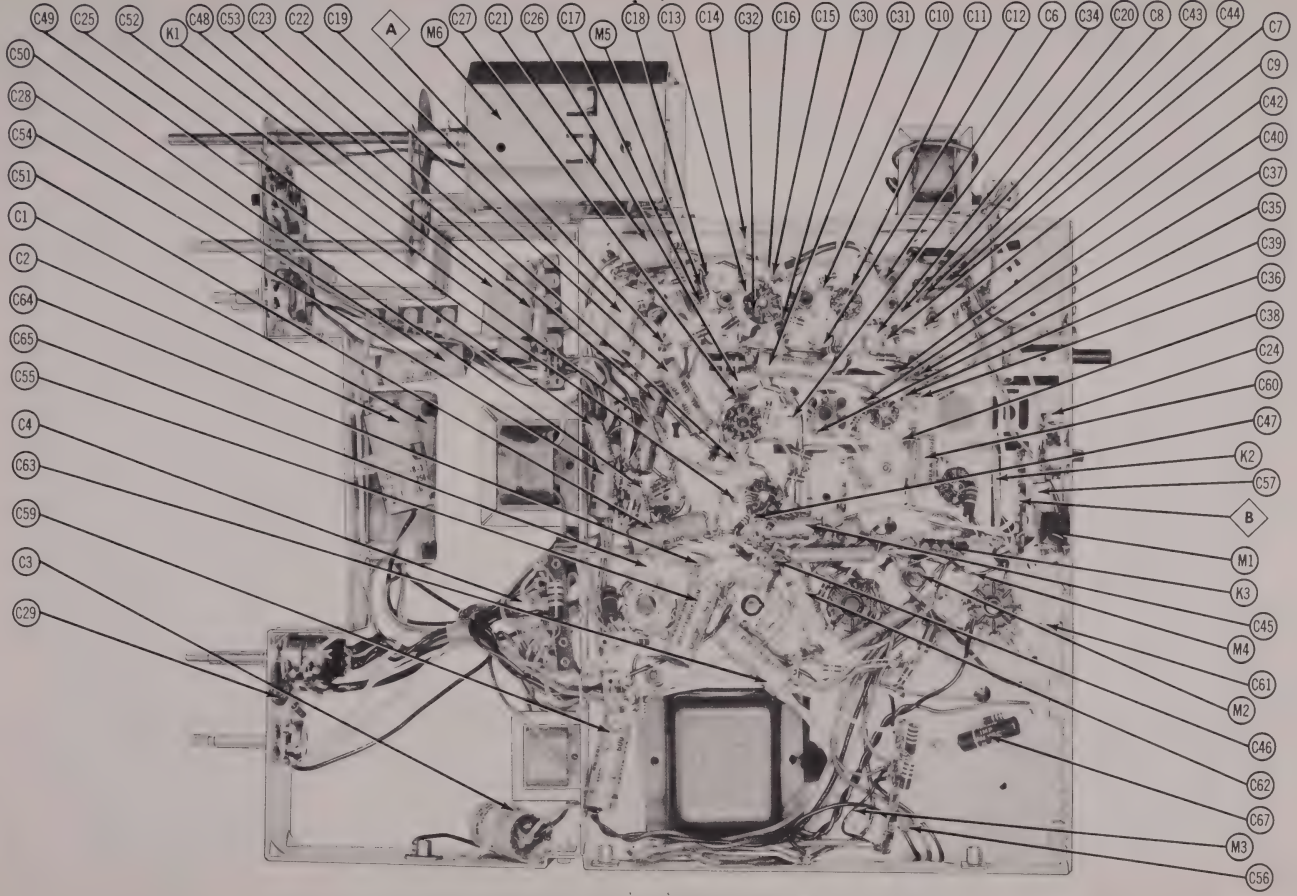


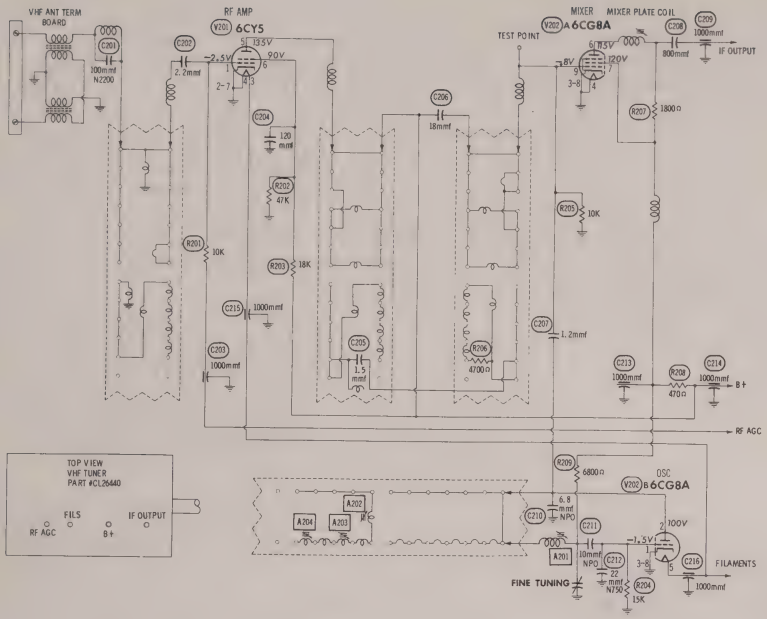
FIG.1



TV CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



TV CHASSIS BOTTOM VIEW - CAPACITOR & MISC. IDENT.



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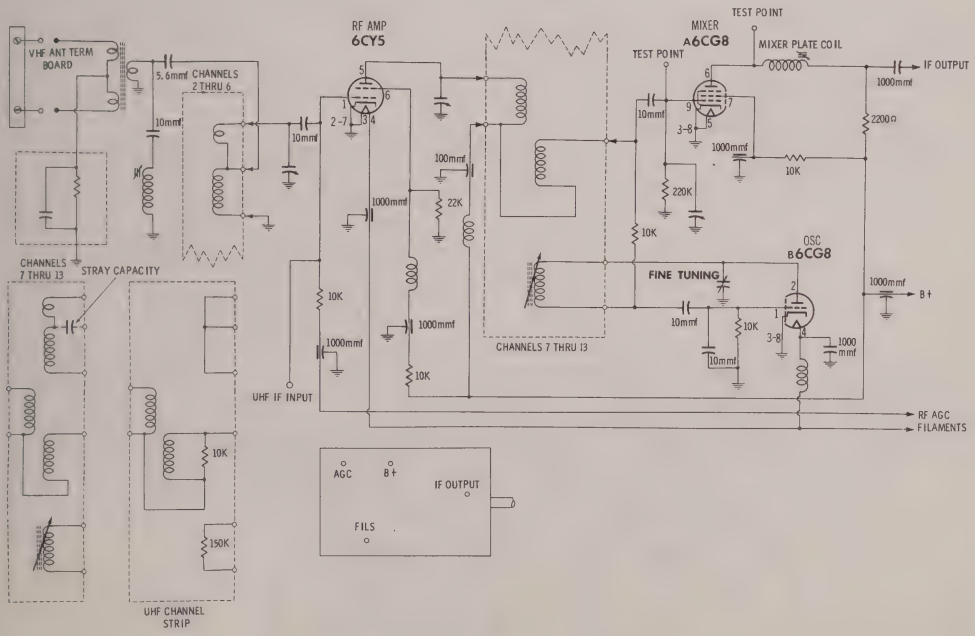
VHF TUNER CL26440



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VHF TUNER with UHF Provisions - CL26405-4

FM - AM ALIGNMENT INSTRUCTIONS

CHASSIS 144, 146, 147, 149, 153 AM ALIGNMENT-SELECTOR IN AM POSITION

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ Mod)	(AM) Tuning gang fully open	Across voice coil of either speaker	A9, A10, A11, A12	Adjust for maximum output.
2.	Loop	1500KC	1500KC	"	A13	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	"	"	"	A14	Adjust for maximum output while rocking tuning gang.

CHASSIS 144, 147, 149 FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM - SELECTOR IN FM POSITION

Connect two matched 100K (±1%) resistors in series from point Ⓒ to chassis. The junction of these two resistors is alignment point Ⓔ as shown on the schematic. (NOTE: For Model 144 only)
Use only enough generator output to provide a usable indication on VTVM.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	Across FM antenna terminals with 150Ω in each lead.	10.7MC (Unmod)	FM Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A15, A16, A17, A18, A19	Adjust for maximum deflection.
5.	"	"	"	DC probe to point Ⓑ. Common to point Ⓔ on Model 144 or to chassis on Models 147 and 149.	A20	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

CHASSIS 144, 147, 149 FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE - SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	Across FM antenna terminals with 150Ω in each lead.	10.7MC (450KC Swp)	FM Point of non-interference	Vert. Amp. to point Ⓒ. Low side to chassis.	A15, A16, A17, A18, A19	Disconnect Stabilizing capacitor . Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. Reconnect capacitor.
5.	"	"	"	Vert. Amp. to point Ⓓ. Low side to chassis.	A20	Adjust to place marker at the center of crossover lines similar to Fig. 3. SLIGHTLY retouch A15 for maximum amplitude and straightness of crossover lines.

CHASSIS 144 FM RF ALIGNMENT - SELECTOR IN FM POSITION

Use only enough generator output to provide a usable indication on VTVM.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	Across FM antenna terminals with 150Ω in each lead.	88MC (Unmod)	FM 88MC	DC probe to point Ⓒ. Common to chassis.	Osc. Coil	Adjust by compressing or expanding coil turns for maximum deflection.
7.	"	108MC	108MC	"	A21	Adjust for maximum deflection. Repeat steps 6 and 7.
8.	"	98MC	98MC	"	RF coil	Adjust by compressing or expanding coil turns for maximum deflection.
9.	"	"	"	"	A22, A23	Shunt primary of antenna coil with 47Ω resistor and adjust A22 for maximum deflection. Change shunt to secondary and adjust A23 for maximum deflection.

CHASSIS 147 AND 149 FM RF ALIGNMENT - SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	Across FM antenna terminals with 150Ω in each lead.	88MC (Unmod)	FM 88MC	DC probe to point Ⓒ. Common to chassis.	A21	Adjust SLIGHTLY if necessary for maximum deflection. If necessary to turn more than one-half turn, try a different 6EZ8.

FIG. 2

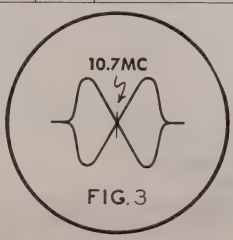
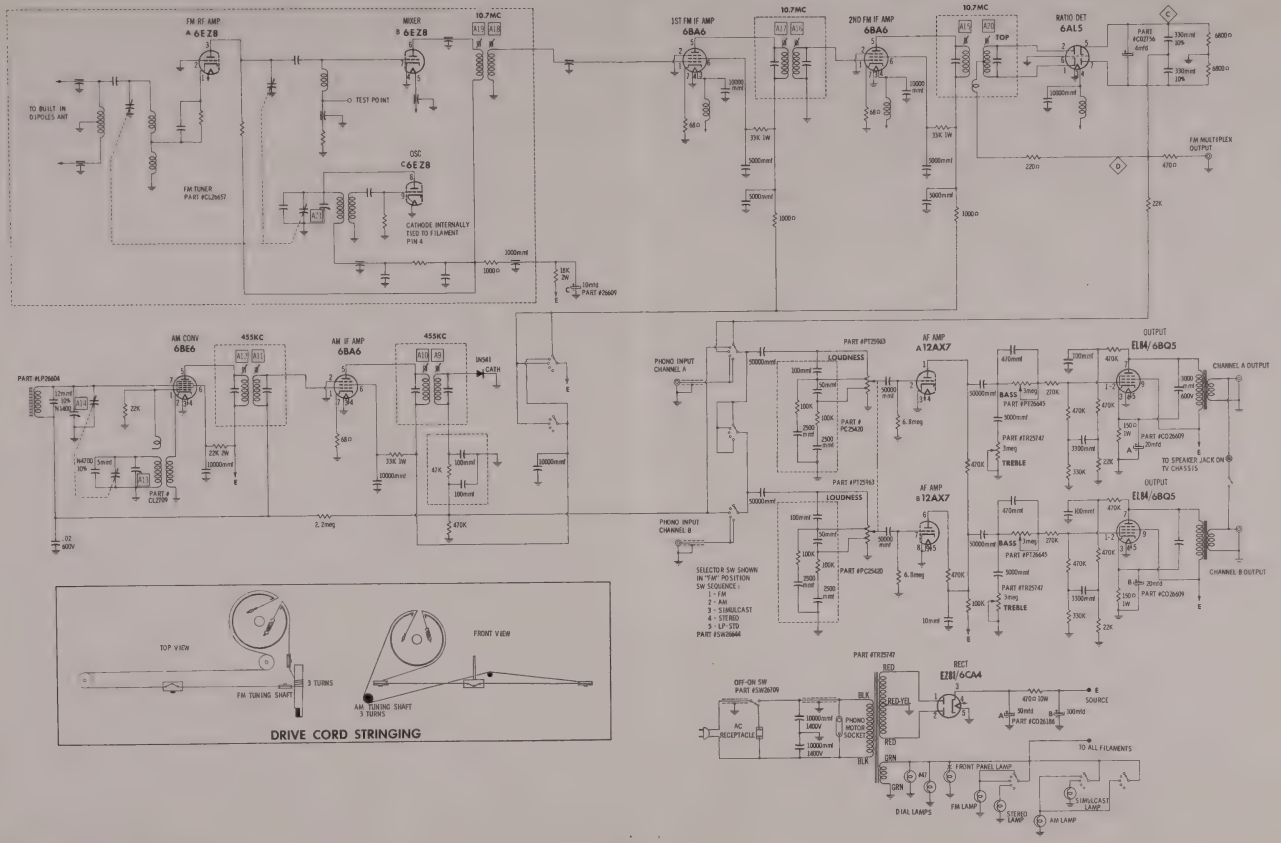


FIG. 3



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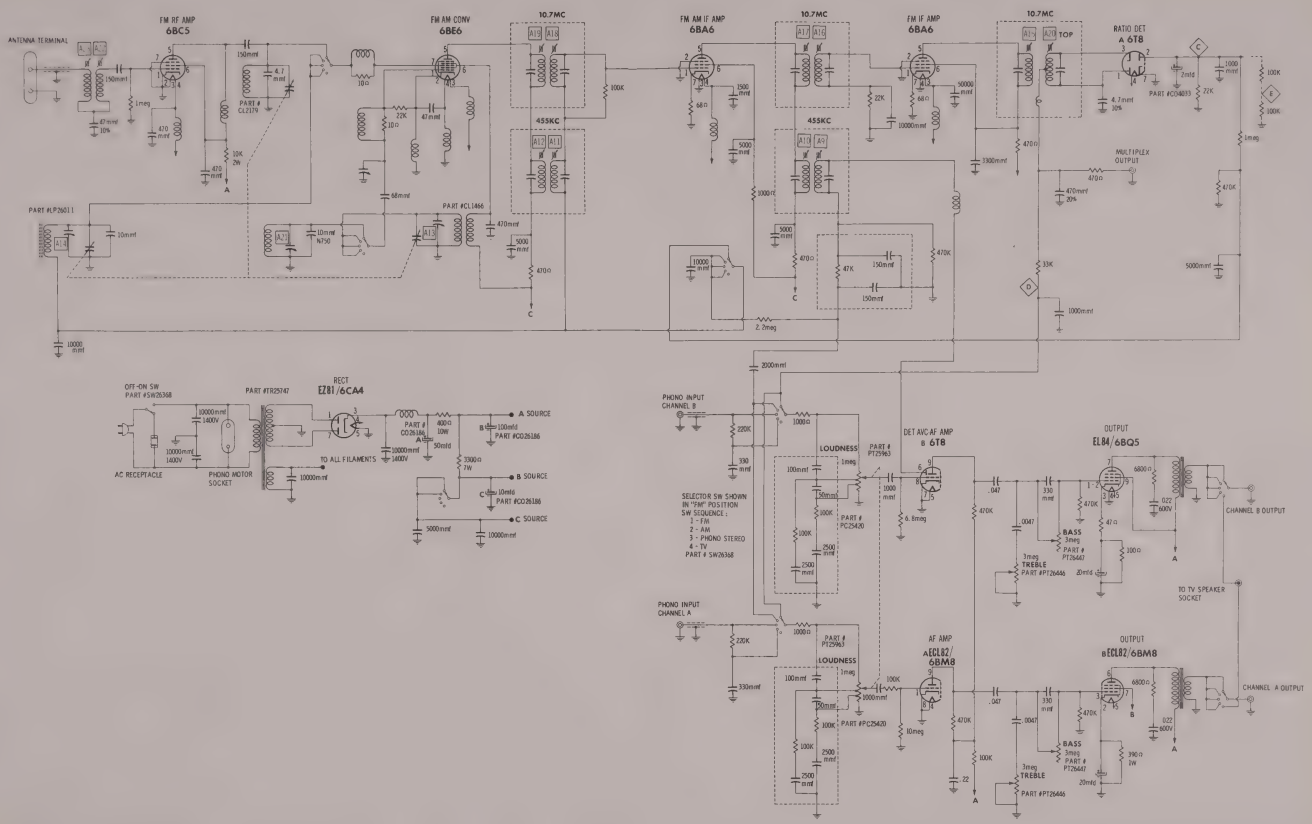
FM-AM RECEIVER CHASSIS 147, 149



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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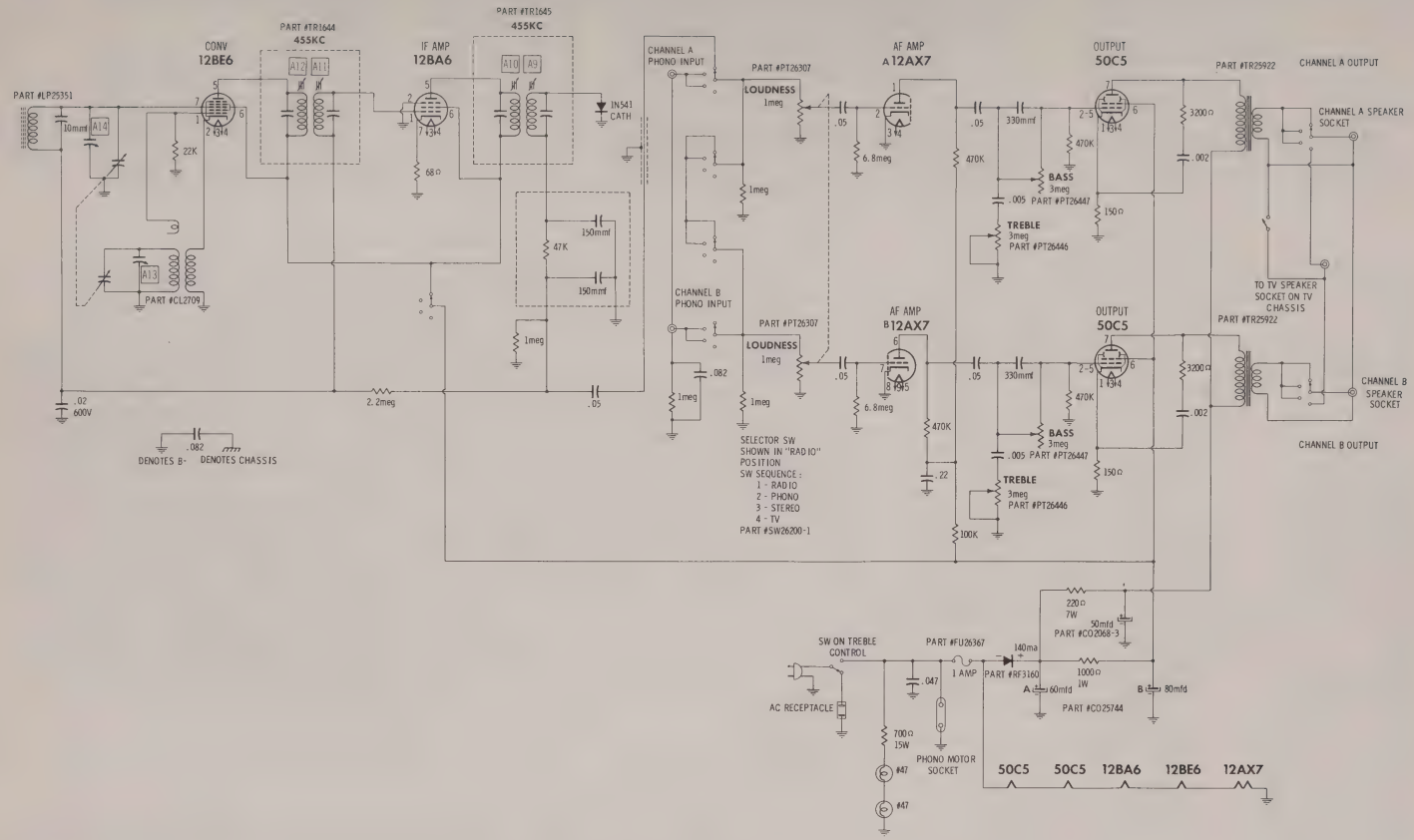
FM-AM RECEIVER CHASSIS 144



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AM RECEIVER CHASSIS 146, 153

OLYMPIC CHASSIS JB, JBU, JD, JDU, JF, JFU, JH, JHU, 144, 146, 147, 149, 153

FOLDER 1

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	CBS	GENERAL ELECTRIC	RAYTHEON	SYLVANIA
	USE	TYPE	USE	TYPE
V1	1st Video IF Amp.	6DE8	V7 Vert. Mult. - Vert. Output	6CM7
V2	2nd Video IF Amp. - Video Output	6CU8	V8 Horiz. Mult.	6CQ8
V3	Video Amp. - Sound IF Amp.	6AW8A	V9 Horiz. Output	6JA8GT
V4	Audio Det.	6DT8	V10 Damper	5AK4GT
V5	Audio Output	6CU8	V11 HV Rect.	5U4GB/5B4GT
V6	Noise Inv. -Sync Sep.	12AX7	V12 LV Rect.	5U4GB

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	OLYMPIC PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V13	21CBP4A	21CBP4A ①	21CBP4A ① 21CBP4A ② 21AEP4 ③	21CBP4 ① 21CBP4A ② 21AEP4 ③	21CBP4 ① 21CBP4A ② 21AEP4 ③	① Aluminized. ② "Silver Screen 85"
	21AEP4	21AEP4 ①				

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	OLYMPIC PART No.	ALLEN-BRADLEY PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C3A	60	350	CDB5794	BR6T4025	WT450			TVA-3636 *	
B	60	350		BR6T025					
C	80	200							
C2	20	350	CD3068-3	BR8035	TC59	TD-50-450	TVA-1713		
C9	10	450	CD4032-3	BR1045	TC72	TD-10-450	TVA-1705		
C4	30	350		BR8705	BR3035	TD-30-350	TVA-1808	Note 1	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Not used in some versions.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						
			ARROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	15 NPO		DTE-15	DTE-15	CD5QSC	CD10-150	CMO-415	10TCC-Q5	
C6	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C7	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C8	47 10%		NPO-SE .47	TCC-R5					#CD25924
C9	6.8 NPO 10%		NPO-GE 6.8	DTZ-6R8	CD9BEC	CD10-6R8	CMO-568	10TCC-Y68	
C10	470 10%		DI-470	DD-471	SS3Y47	CD10-471	GP247	197D-Y47	
C11	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C12	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C13	1000		DI-1000	DD-102	PME1X	CD10-102	GP20	197D-D20	
C14	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C15	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C16	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C17	18 NPO 10%		NPO-DI 27	TCC-18	CD9QBC	CD10-180	CMO-418	10TCC-Q8	
C18	4.7		NPO-SE 4.7	TCC-4R7	CD9Y47C	CD10-479	CMO-547	10TCC-Y47	
C19	47 200V		P3S81-47		CUD3247	SDP-5-474	GM4-2047	3TM-P47	
C20	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C21	47 400V	(.22mfd) †	P4S81-47		CUD4P47		GM4-4047	4TM-P47	
C22	1000 400V		P4S81-047	DD-503	BY1A103	CD10-502	GP203	56K-D30	
C23	5000		BPD-005	DD-503	BY1A103	CD10-502	GP203	56K-D30	
C24	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C25	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C26	1 200V		P2S81-1	DI-104	CUD1Z1	CD10-105	GP201	2TM-P1	
C27	5000		BPD-005	DD-503	BY1A105	CD10-502	GP203	56K-D30	
C28	22 400V		P4S81-23		CUD4P23	SDP-5-334	GM4-4023	4TM-P23	
C29	33 NPO 10%		NPO-GE 33	DTZ-33	CD9QEC	CD10-330	CMO-433	10TCC-Q33	
C30	15 NPO		NPO-DI 15	DTZ-15	CD9QSC	CD10-150	CMO-415	10TCC-Q5	
C31	.047 400V		P4S81-047	DD-503	BY1A103	CD10-473	GP203	56K-D30	
C32	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C33	1 600V		P6S81-1	DF-104	CUD1F1	SDP-6-104	GM6-501	6TM-P1	
C34	6.8 NPO 10%		NPO-DI 6.8	DTZ-6R8	CD9BEC	CD10-688	CMO-568	10TCC-Y68	
C35	330 10%		BA-331	LOT233		CD10-331	GP233	33K-D20	
C38	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C37	5000	(.02mfd 400V)	BPD-005	DD-502	BY1A105	CD10-502	GP203	56K-D30	
C38	3 NPO 10%		DTN-S	CDV5U		CCN7N-050	CN0-350	10TCU-Y50	
C39	5000		BPD-005	DD-502	BY1A105	CD10-502	GP203	56K-D30	
C40	10000		BPD-01	DD-103	BY1A105	CD10-103	GP105	56K-S30	
C41	50 50V		P3S81-05	DA-503	CUD3A05	CD10-503	GP205	56K-D50	
C42	1000		BPD-001	DD-502	BY1A105	CD10-502	GP203	56K-D30	
C43	5000		BPD-005	DD-502	BY1A105	CD10-502	GP203	56K-D30	
C44	.047 600V		P6S81-047	DE-473	CUD6S47	SDP-6-473	GM6-547	6TM-D47	
C45	.047 400V		P4S81-047	DD-503	CUD4S47	SDP-4-473	GM4-4047	4TM-D47	
C46	2000		BPD-002	DD-202	BY1A102	CD10-202	GP202	56K-D20	
C47	470		BPD-00047	DD-471	BY1A0T47	CD10-471	GP247	197D-Y47	
C48	15 400V		P4S81-15		CUD4P15	SDP-4-154	GM4-4015	4TM-P15	
C49	.0047 600V 10%		V6AC5S47-10%		PME5D47	SDP-1-472	GM6-16247	6TM-D47	
C50	.0047 600V 10%		V6AC5S47-10%		PME5D47	SDP-1-472	GM6-16247	6TM-D47	
C51	.01 1600V		P16S4C01-01	DD5S-103	CUD5S3	18DP-3-103	GM5-1611	MB-S1	
C52	1000		BPD-001	DD-102	BY1A101	CD10-102	GP20	56K-D20	
C53	035 600V		P6S81-033		CUD6S33	SDP-3-333	GM6-5133	6TM-S35	
C54	4.7 400V		P4S81-1	DF-104	CUD4Z1	SDP-1-104	GM4-401	4TM-P1	
C55	15 400V		P4S81-15		CUD4P15	SDP-4-154	GM4-4015	4TM-P15	
C56	470 10%		DI-470	DD-471	SS3Y47	CD10-471	GP247	197D-Y47	
C57	1 200V		P2S81-1	DF-104	CUD2Z1	SDP-3-104	GM4-201	2TM-P1	
C58	3900 10%		1484-0039		UB3D39	CM-30B-3920	MC2462.5	MB-B39	
C59	1 600V		P6S81-1	DF-104	CUD6Z1	SDP-3-104	GM6-601	6TM-P1	
C60	001 600V 10%		V6AC5S1-10%	DD-103	PME5X	SDP-1-103	GM5-1611	6TM-S1	
C61	100-580	#CT3526				467			
C62	047 400V		P4S81-047	DD-503	CUD4S47	4DP-3-473	GM4-4147	4TM-S47	
C63	1 400V		P4S81-1	DF-104	CUD4Z1	4DP-3-104	GM4-401	4TM-P1	
C64	10000		BPD-01	DD-103	BY1A103	CD10-103	GP103	56K-S30	
C65	100 2000V 10%	#CD3781						3DY-S10	
C66	68 2000V 10%	#CD4530						3DY-S68	
C67	01 600V		P6S81-01	DE-103	CUD6S1	6DP-3-103	GM6-611	6TM-S1	

† Alternate value. # Olympic Part No.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST ANCE	WATTS	OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	15K	1	PT26558		RTV-691	† GU-1328	● UE411-5	Picture (Contrast) Volume
B	Integ							Push-Pull On-Off
C	Switch							
R2A	Integ	1	PT5702	B-69	A47-Integ-B	QU-137	U54	Brightness, Note 1
B	Shaft			Not Req.	S25-3	Not Req.	Not Req.	
R3A	Integ	1	PT25736		RTV-679	‡ UE-1698-2		Brightness, Note 2
B	500K							Tone
C	Switch							3D Switch
R4A	Integ	1	PT26438	B-75	A47-Integ-B	QU-139	U56	Vert. Hold
B	Shaft			Not Req.	S25-2	Not Req.	Not Req.	
R4A	Integ	1	PT26439	B-69	A47-Integ-B	QU-137	U54	Horiz. Hold
B	Shaft			Not Req.	S25-3	Not Req.	Not Req.	
R5A	500K	1	PT25790	B-59	B47-500K-B	BU-133	PTA55L	Vert. Lin.
B	Switch			Not Req.	Not Req.	TM4	Not Req.	
R6A	2.5meg	1	PT8008-1	AB-53	B47-2.5meg-B	BU-139	TA2S5L	Height
B	Shaft			AK-1	Not Req.	TM4	Not Req.	
R7A	500Ω	1	PT26313	AB-4	B47-500-B	BU-103	U3	Picture Power
B	Switch			AK-1	Not Req.	TM4	Not Req.	

● "TL-LOC" Equivalent: FA1511, RUP8A, OR500A. Note 2. Used in Ch. JD, JDU, JH, JHU.
Note 1. Used in Ch. JB, JBU, JF, JFU.
† "Concentrim" Equivalent: K-16 Kit with Base Elements & Shafts: BU-118, P13-16 (Panel) (Not available as a factory assembled unit.) BU-137, B2S-300 (Rear)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R8	470Ω	
R9	470Ω	
R10	180Ω	
R11	180Ω	
R13	1000Ω	
R14	1meg	
R14	3600Ω	
R15	150	
R16	150	
R17	22K	
R18	330Ω	
R19	47Ω	
R20	22K	
R21	330Ω	
R22	1.8meg	
R23	3900Ω	
R24	1.5meg	
R25	1meg	
R26	33K	
R27	1meg	
R28	82KΩ	
R29	470Ω	
R30	1K	
R31	150K	
R32	560Ω	
R33	100Ω	
R34	2200Ω	

ITEM No.	RATING	REMARKS
R35	100K	
R36	150K	
R37	220K	
R38	100K	
R39	22K	
R40	47K	
R41	270K	
R42	150K	
R43	560K	
R44	10K	
R45	560Ω	
R46	1meg	
R47	560Ω 2W	
R48	1meg	
R49	330K	
R50	10meg	
R51	330K	
R53	100K	
R53	3.3meg	
R54	470K	
R55	100K	
R56	27K	
R57	1.5meg	
R58	1.5meg	
R59	1.5meg	
R60	12K	
R61	150Ω	

ITEM No.	RATING	REMARKS
R63	1meg	
R63	470K	
R64	10meg	
R65	150K	
R66	1000Ω 2W	
R67	100Ω	
R68	560Ω	
R69	560Ω	
R70	330K	
R71	330K 1W	
R72	680Ω 1W	
R73	820Ω	
R74	470K	
R75	820K	(150K)*
R76	330Ω	
R77	47Ω	
R78	22K	
R79	8800Ω 6W	#RE38574
R80	15Ω	
R81	470Ω	
R82	3.3Ω	
R83	47K 1W	
R84	100K	
R85	150K	
R86	330Ω	Note 1
R87	100Ω 6W	#RE5836
R88	470K	

Olympic Part No.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	OLYMPIC PART No.	REPLACEMENT DATA
K2	Vert. Integrator	680mmf, 200mmf, 68K, 68K, 100K	PC30648	
K3	Horiz. AFC & Mult. Grid	100mmf, 150mmf, 1000mmf, 1000mmf, 4700mmf, 56K, 82K, 100K, 560K, 820K, 1meg, 1meg	PC25766	
K5	Horiz. Mult. Plate	560mmf, 1000mmf, 82000, 82K, 470KΩ	PC25764	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		OLYMPIC PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	RF Choke	CL2547						Note 1
L2	47.25MC Trap	CL2545						
L3	IF Choke	CL1525	19-3038	19-3038	TV-190	6178	VP-1	39uh
L4	1st Video IF	CL4753	17-4534	17-4534	TV-131		VP-4	
L5	47.25MC Trap	CL4752						
L6	2nd Video IF	CL4511	17-4532	17-4532	TV-130	6189	VP-3	
L7	3rd Video IF	CL4749	17-4533	17-4533	TV-130	6189	VP-3	
L8	Resonant Choke	CL4525						1.7uh
L9	Series Peaking Coil	CL2543	19-3100	19-3100	TV-194	6113	VP-4	110uh
L10	Shunt Peaking Coil	CL2542	19-4100	19-4100	TV-196	6120		180uh
L11A	Sound Take-Off	TR3586-1						
B	6.5MC Trap							
L12	Series Peaking Coil	CL2542	19-3100	19-3100	TV-194	6113	VP-4	110uh
L13	Shunt Peaking Coil	CL2758	19-3300	19-3300	TV-195	6119	VP-6	240uh
L14	Series Peaking Coil	CL2540	19-3060	19-3060	TV-198	6110		68uh
L15	Sound IF	CL4512	17-3413	17-3413				
L16	Quadrature Coil	CL2603-1					SD-5	
L17	Resonant Choke	CK5415						6.8uh
L18	Resonant Choke	CK5415						6.8uh

Note 1. Wound on lmeg resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA					NOTES
	PRI.	SEC.	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Miller PART No.	Thordarson PART No.	
L19	50Ω		CL5654-1					Horiz. Stabilizer

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	CURRENT (Miliamperes)	DC RES.	INDUCTANCE @ CURRENT (Henrys)	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L20	210A	50Ω	7 Hy.	CK4047				C-2527 ①		C-36X

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC 1	SEC 2	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1.35A	580VCT @ 210A	5V @ 5A	TR4007-3		26R40	P-3867	P-8164	26R40	R-65DC
	SEC 3	SEC 4	SEC 5							
	6.3V @ 7.5A									

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA						
		OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Output	TR3570-5						A-14X
T3	Yoke-Horiz. (DAMI) (90°)-Vert. (39MH)	CL2600-4	Y-16 ①	MDF-92 ①②	YW97B/43 ①②	PCM2045 ①②	DY-18A ①②	Y-16 ①	Y-41 & YW-3 ① YC-1 & C-1
	Rear Cover & Centering Device	PP5640							
T4	Yoke Clamp	EP5679							
	Horiz. Output	TR3569-5	FLY-143 *	RVO-131 ① ③ *	J0151 *	FFR16 ③ *	HO-296 *	FLY-143 *	D-120 *

① Connect same as original.
② Use original horizontal yoke damping network, if necessary.
③ Drill new mounting hole(s).
* This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections	
9	4	8	9	5	4	4	9	
8	8	6	8	4	8	8	8	
6	7	6	6	4	7	7	6	
3	2	5	4	3	2	2	3	
2	5	4	3 & 2	2	5	5	2	
1	1	3	1	1	1	1	1	
Special Notes	3	3	③	5				

② Filament requires two turns.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T5	2500Ω	3-4Ω	TR2536?	8-12X	A-3025	AU-605	A-3332	26S53	8-12X

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA				NOTES
				OLYMPIC PART No.	GUAM PART No.	
SP1	4"	PM	3-4Ω	SK4342	GA07R	(One used) Models CD205, 207, 214, CF440, 446, TP301, (Two used) Models CD208, 209, 209P, 210, KD218, 219, 222P, 223, KH435, 437
	6"x9"	PM		SK5734		Models KD215, 216, 222P, KH435, 437 (Two used)
	8½"	PM	3-4Ω	SK3630	3A15T	Model KD223 (Two used)
	12"	PM	3-4Ω	SK3810	12A8A	Model KD223 (Two used)
	5"	PM		SK3452		Model KD216 (Two used)
	6"	PM	3-4Ω	SK2554	6A1	Models CD206, 207, 214, CD208, 209P, 210P, CF440, 446, KD216
	8"	PM	3-4Ω	SK3798-3	8A07	Model TD203
	8½"	PM	3-4Ω	SK3465	3A15T	Model TD203

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	OLYMPIC PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1		RF5465 ②	1T1 ②	K2615 ②			① Two Required. ② Dual Sel. Diode

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			OLYMPIC PART No		LITTELFUSE PART No		BUSS PART No	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	C	3A 250V	FU28305	FH5344	323, 500 (C 3A 250V)	348003	C①	HC 3/10 to 1/3
M3	3½" length	#26 Wire						
M4	3½" length	#26 Wire						

PARTS LIST AND DESCRIPTIONS (Continued)

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		OLYMPIC PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M5	1N64 *		1N60	1N60	1N64	* 1N60 Alternate

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M6	Tuner	CL26440	VHF
	Tuner	CL26405-4	VHF with UHF provisions
	Tuner	CL26405-5	UHF
M7	Switch	SW2966-1	Local-Distant (DPDT Slide Type)

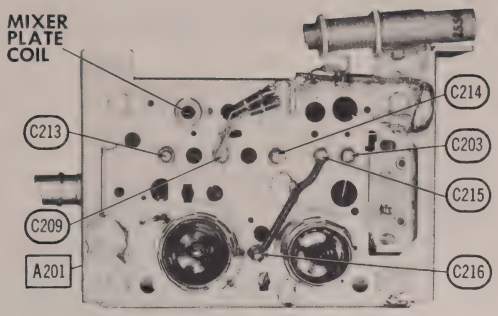
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

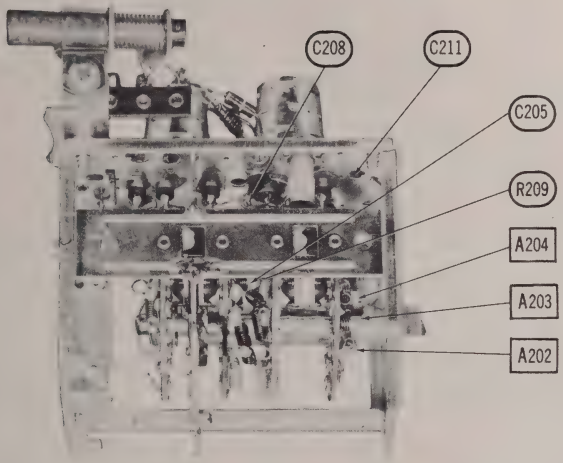
NAME	PART NO.	DESCRIPTION
Safety Glass	PP3656-1	Series CB, CD, KB, KD, TB, TD
Safety Glass	PP3939-1	Series CF, KH
Mask	PP3646-2	Series CB, CD, KB, KD, TB, TD
Mask	PP3938	Series CF, KH
Knob	KN26264	Channel Selector, All Models
Knob	KN26268	UHF Channel Selector, All "U" Models
Knob	KN26671	VHF Fine Tuning, All Models
Knob	KN26265	Dial, All Models
Knob	KN26269	Calibrated Dial, All "U" Models
Knob	KN25773	Brightness, Series CD, KD, KH, TD ; Contrast, All Models
Knob	KN25777	Brightness, Series CB, CF, KB, TB
Knob	KN26270	Horiz. Hold, Vert. Hold, Series CB, CF, TB
Knob	KN26271	Vert. Hold, Series, CD, KB, KD, KH, TD
Knob	KN26272	Horiz. Hold, Series, CD, KD, KH, TD
Knob	KN26273	Pull, All Models
Knob	KN26318	Loudness (Rear), Series, KB, KD, KH
Knob	KN26487	Balance, Loudness (Front) Series, KB, KD, KH
Knob	KN26485	Bass (Channel A front) Series KB, KD, KH
Knob	KN26490	Bass (Rear) Series KB, KD, KH
Knob	KN26486	Treble, Off (Channel A front) Series KB, KD, KH
Knob	KN26489	Treble (Rear), Series KB, KD, KH
Knob	KN26491	Tuning, Series KB, KD, KH
Knob	KN26493	Function Selector, Series KB, KD, KH
Cabinet	CA26449	Models CB206, U
Cabinet	CA26458	Models TB201, U
Cabinet	CA26460	Models CB207, U
Cabinet	CA26461	Models CB214, U
Cabinet	CA26462	Models CD210P, PU
Cabinet	CA26464	Models CF440, U
Cabinet	CA26465	Models CF441, U
Cabinet	CA46468	Models KB216, U
Cabinet	CA26469	Models KD218, U
Cabinet	CA26470	Models KD219, U
Cabinet	CA26472	Models KD222P, PU
Cabinet	CA26473	Models KH436, U
Cabinet	CA26522	Models CD209P, PU
Cabinet	CA26549	Models CD211D, DU
Cabinet	CA26550	Models KD223, U
Cabinet	CA26474	Model KH437, U

WIRING DATA

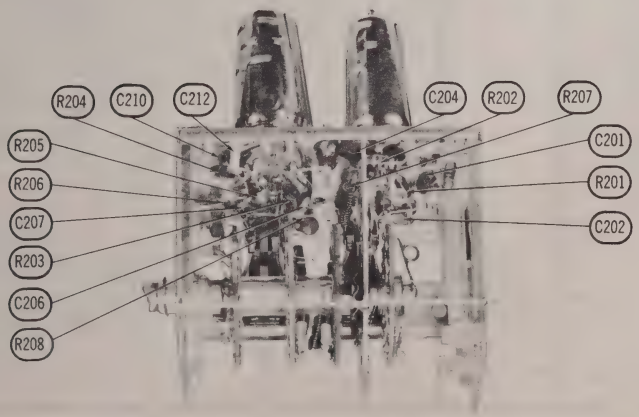
High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



VHF TUNER CL26440 - TOP VIEW



VHF TUNER CL26440 - LEFT SIDE



VHF TUNER CL26440 - RIGHT SIDE

TUNER
CL-26440
PARTS LIST AND DESCRIPTIONS

TUBES

• CBS •	GENERAL ELECTRIC •	RAYTHEON •	SYLVANIA •

ITEM No.	USE	TYPE
V201	RF Amplifier	6CY5

ITEM No.	USE	TYPE
V202	Mixer-Osc.	6CG8A

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	100 N2200					*		30TCY-T10
C202	2.2		NPO-DI 2.2	DTZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C203	1000		EF-001	MFT-1000		CCF-102	CT280A	
C204	120		DI-120	DD-121	L10T12	CCD-121	GP312	10TS-T12
C205	1.5		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C206	18		DI-18	DD-180	L10Q18	CCD-180	GP418	10TS-Q18
C207	1.2		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V12
C208	800		BPD-0008	DD-801	L10T8	CCD-821	GP382	10TS-T80
C209	1000		EF-001	MFT-1000		CCF-102	CT280A	
C210	6.8 NPO		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C211	10 NPO		NPO-DI 10	DTZ-10	C10V10C	CCTO-100	CNO-410	10TCC-Q10
C212	22 N750		N750-SI 22	TCN-22	C10Q22U	CCTN-220	CN7-422	10TCU-Q22
C213	1000		EF-001	MFT-1000		CCF-102	CT280A	
C214	1000		EF-001	MFT-1000		CCF-102	CT280A	
C215	1000		EF-001	MFT-1000		CCF-102	CT280A	
C216	1000		EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R201	10K	
R202	47K	
R203	18K	

ITEM No.	RATING	REMARKS
R204	15K	
R205	10K	
R206	4700Ω	

ITEM No.	RATING	REMARKS
R207	1800Ω	
R208	470Ω	
R209	6800Ω	

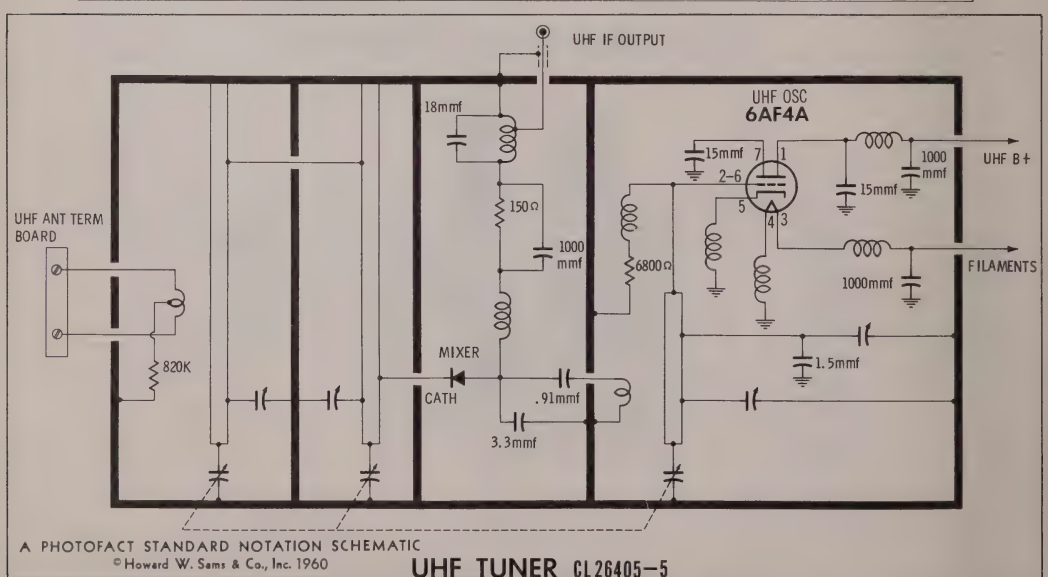
ALIGNMENT INSTRUCTIONS

OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range. Set the Channel Selector to the highest high band channel operating in the area. Adjust A201 for best picture and sound. Check all other high band channels operating in the area in a descending order and if necessary, adjust the coil for that channel by bending toward or away from the wafer for best picture and sound.
Set the Channel Selector to the highest low band channel operating in the area and adjust the appropriate slug for best picture and sound. A202 is the adjustment for both channel 6 and 5. However, the slug can only be reached when the Selector is set to channel 6. Therefore, to adjust channel 5 switch to channel 6, adjust slug then switch back to channel 5 and check picture. Repeat until adjustment is satisfactory. A203 is for adjusting channels 4 and 3 and is adjusted in the same manner switching to channel 4 to adjust channel 3. A204 is for adjusting channel 2.

RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attemped in the field.



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UHF TUNER CL26405-5

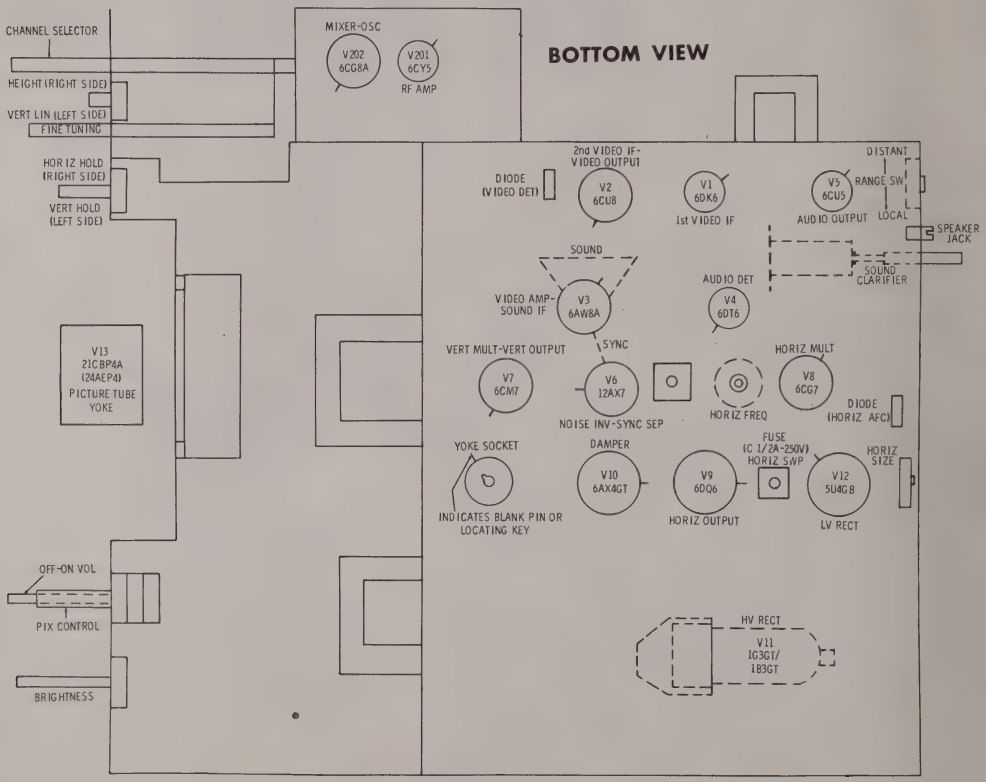
TV CHASSIS - TOP VIEW

RESISTANCE MEASUREMENTS

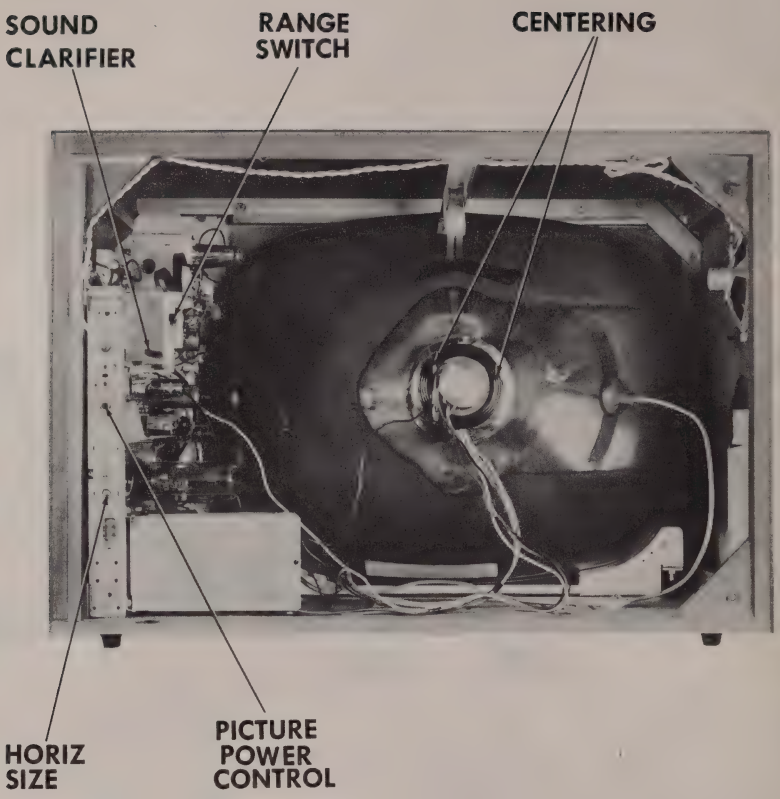
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6DK6	1meg	47Ω	.2Ω	0Ω	▪ 330Ω	▪ 330Ω	0Ω		
V2	6CU8	100Ω	▪ 330Ω	▪ 330Ω	0Ω	.2Ω	180Ω	.1Ω	• 15K	†5600Ω
V3	6AW8A	0Ω	100K	▪ 22K	.2Ω	0Ω	• 210Ω	650K	▪ .5Ω	†4700Ω
V4	6DT6	2.8Ω	560Ω	.2Ω	0Ω	†270K	▪ 10K	560K		
V5	6CU5	¶	500K	.2Ω	0Ω	500K	†390Ω	†590Ω		
V6	12AX7	†330K	1meg	70K	.2Ω	.2Ω	†100K	2.7meg	0Ω	0Ω
V7	6CM7	*2800Ω	NC	0Ω	0Ω	.2Ω	• †2meg	• 1.5meg	•1.7meg	100Ω
V8	6CG7	†10K	2.3meg	820Ω	.2Ω	0Ω	†82K	68K	820Ω	0Ω
V9	6DQ6	TP	0Ω	NC	†8900Ω	470K	TP	.2Ω	0Ω	TOP CAP †36Ω
V10	6AX4GT	NC	NC	¶200K	NC	†0Ω	NC	0Ω	.2Ω	
V11	1G3GT 1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP †680Ω
V12	5U4GB	NC	¶	NC	28Ω	TP	26Ω	TP	¶	
V13	21CBP4A	0Ω	100K	Pin 6 †60K	Pin 10 †60K	Pin 11 • 270K	Pin 12 .2Ω			
V201	6CY5	1meg	0Ω	.2Ω	0Ω	▪ 0Ω	▪ 15K	0Ω		
V202	6CG8A	15K	▪ 5200Ω	0Ω	0Ω	.2Ω	▪ 2200Ω	▪ 470Ω	0Ω	10K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
▪ MEASURED FROM 135V SOURCE.
† MEASURED FROM 265V SOURCE.
‡ MEASURED FROM PIN 3 OF V10.

NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and allow it to warm up for 2 minutes.

Tune in a TV station, preferably with a test pattern.

Connect a clip lead from point (B) to chassis. Connect another clip lead across the Horizontal Stabilizing coil (L19).

Adjust the Horizontal Hold until the picture synchronizes horizontally. (It may float back and forth.)

Remove the clip lead from L19. Adjust the Horizontal Frequency slug (B1) until the picture is again in frequency. Remove clip lead from point (B) and chassis.

Turn the Horizontal Drive Trimmer (B2) (Horiz. Size) counterclockwise until a vertical white line (drive line) appears near the center of the screen, then turn clockwise until line just disappears. If drive line cannot be obtained, adjust B2 for proper width.

If B2 is adjusted, recheck adjustment of B1 and Horizontal Hold.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push-on type knobs from the front of cabinet.
2. Remove 1 wood screw holding front escutcheon. Remove escutcheon.
3. Remove 3 push-on type knobs now visible.
4. Remove 1 wood screw and 1 metal screw holding the rear cover. Remove rear cover.
5. Remove speaker leads, HV lead, picture tube socket, yoke plug and picture tube bracket grounding wire.
6. Remove 3 chassis bolts from bottom of cabinet and 1 bolt from rear of chassis.
7. Remove chassis.

PICTURE TUBE REMOVAL

1. Remove chassis.
2. Remove 2 picture tube mounting bracket bolts from the bottom and 1 from the top of cabinet.
3. Remove picture tube.

PHOTOFACT® Folder with CIRCUITRACE®

PHILCO CHASSIS 10H25, 10H25R, 10H25U

PHILCO CHASSIS
10H25, 10H25R, 10H25U

MODEL H3047WC (Ch. 10H25R)

PHILCO CHASSIS
10H25, 10H25R, 10H25U

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DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL FOR MODEL H3047WC

1. Remove 7 metal screws (4 at top, 3 at bottom) holding rear cover. Remove tuner antenna leads. Remove rear cover.
2. Remove 7 pushon type knobs from the top of the cabinet.
3. Remove 4 metal screws holding front faceplate. Pull out at bottom and remove.
4. Remove 5 chassis bolts from bottom of cabinet.
5. Remove 1 metal screw from upper left rear and 1 from upper right rear of cabinet. Remove 2 metal screws holding upper control bracket to cabinet.
6. Remove 5 metal screws from top front of cabinet holding chassis to cabinet.
7. Remove speaker leads, hi voltage lead, and picture tube socket.
8. Remove cabinet from chassis.
9. Remove 4 metal screws holding picture tube mounting bracket to chassis.
10. Loosen yoke clamp and remove picture tube assembly.

PICTURE TUBE REMOVAL

Follow steps 3 and 9, then remove hi voltage lead and picture tube socket. Loosen yoke clamp and remove picture tube assembly.

MODEL H3047WC (Ch. 10H25R)

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

TRADE NAME	Philco Models	Chassis
	H3046AQ, H3046GL, H3046GT	10H25
	H3047GC, H3047TC, H3047WC, H3055BL, H3055L, H3055WL (With Pneumatic Remote Tuning)	10H25R
	UH3046AQ, UH3046GL, UH3046GT, UH3047GT, UH3047TC, UH3047WC, UH3052BL, UH3052L, UH3052WL	10H25U

MANUFACTURER	Philco Corp., Tioga & "C" Streets, Philadelphia, Pa.
TYPE SET	Television Receiver
TUBES	VHF - Fifteen, UHF - Sixteen
POWER SUPPLY	105-120 Volts AC, 60 Cycle RATING 135 Watts, 1.3 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 2 screws at bottom and 1 on each side holding faceplate and trim. Pull out at bottom and remove.

FUSE DEVICE

A 5.6Ω fusible resistor is used for low voltage power supply protection. (For Location, see R59, "Chassis-Rear View")

TUNER OSCILLATOR ADJUSTMENTS

To touch-up the VHF Oscillator, remove Channel Selector and Fine Tuning Knobs.

AGC

No provision is made to vary the AGC on this receiver.

FOCUS

The focus may be varied by connecting the lead from pin 4 of the picture tube to various voltage points. (For location, see "Cabinet-Rear View".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency slug. (For location, see "Tube Placement Chart".)

WIDTH

To increase width, connect jumper across R55 using two panel lugs located on Sweep Printed Board. (Also See "Cabinet-Rear View")

HORIZONTAL LINEARITY

Adjust Magnet located on yoke assembly. (See "Cabinet-Rear View".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz control for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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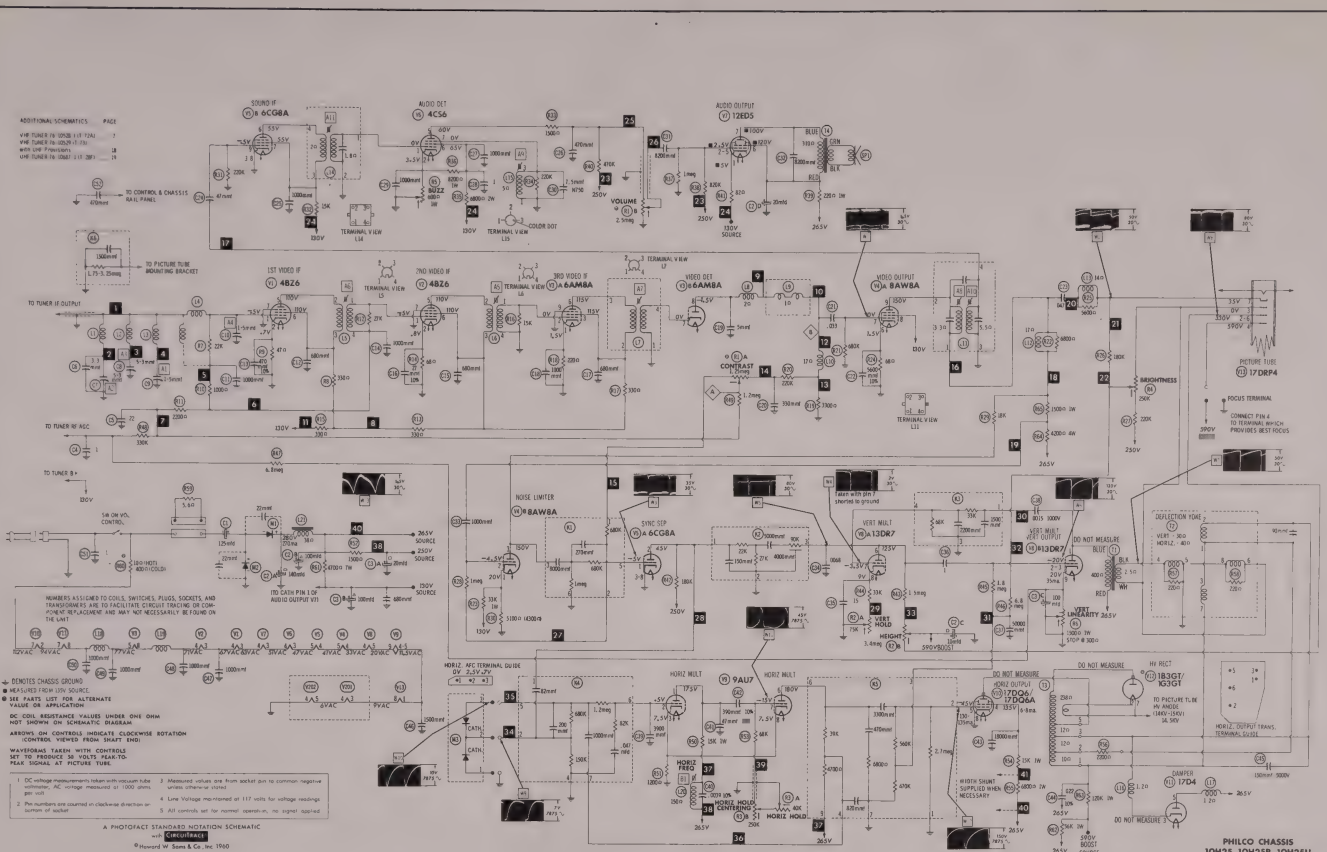
PHILCO CHASSIS
10H25, 10H25R, 10H25U

SET 484 FOLDER 2


ADDITIONAL SCHEMATICS PAGE
SOUND IF V5 B 6CG8A
AUDIO DET V6 4CS6
AUDIO OUTPUT V7 12ED5
1ST VIDEO IF V1 4BZ6
2ND VIDEO IF V2 4BZ6
3RD VIDEO IF V3 A 6AM8A
VIDEO DET V4 B 6AM8A
VIDEO OUTPUT V9 A 8AW8A
NOISE LIMITER V8 B 8AW8A
SYNC SEP V5 A 6CG8A
VERT MULT V8 A 13DR7
VERT OUT PENT OUTPUT V9 B 13DR7
HORIZ MULT V9 9AU7
HORIZ MULT
HORIZ OUTPUT V7 17DQ6 17DQ6A
HV RECT V12 1B3GT/1G3GT
DAMPER V11 17D4
PICTURE TUBE V10 17DRP4
TO TUNER IF OUTPUT
TO TUNER RF AGC
TO TUNER B+
TO CONTROL & CHASSIS RAIL PANEL
TO PICTURE TUBE MOUNTING BRACKET
TERMINAL VIEW L34
TERMINAL VIEW L35
TERMINAL VIEW L7
TERMINAL VIEW L6
TERMINAL VIEW L5
TERMINAL VIEW L11
VOLUME
COLOR
CONTRAST
BRIGHTNESS
FOCUS
HEIGHT
VERT HOLD
VERT LINEARITY
HORIZ FREQ
HORIZ HOLD CENTERING
HORIZ HOLD
WIDTH SHUNT SUPPLIED WHEN NECESSARY
DO NOT MEASURE
DEFLECTION YOKE
HORIZ. OUTPUT TRANS. TERMINAL GUIDE
CONNECT PIN 4 TO TERMINAL WHICH PROVIDES BEST FOCUS
TO CATH PIN 1 OF AUDIO OUTPUT V11
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
DENOTES CHASSIS GROUND
MEASURED FROM 120V SOURCE.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END.
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction or bottom of socket
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line Voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation, no signal applied
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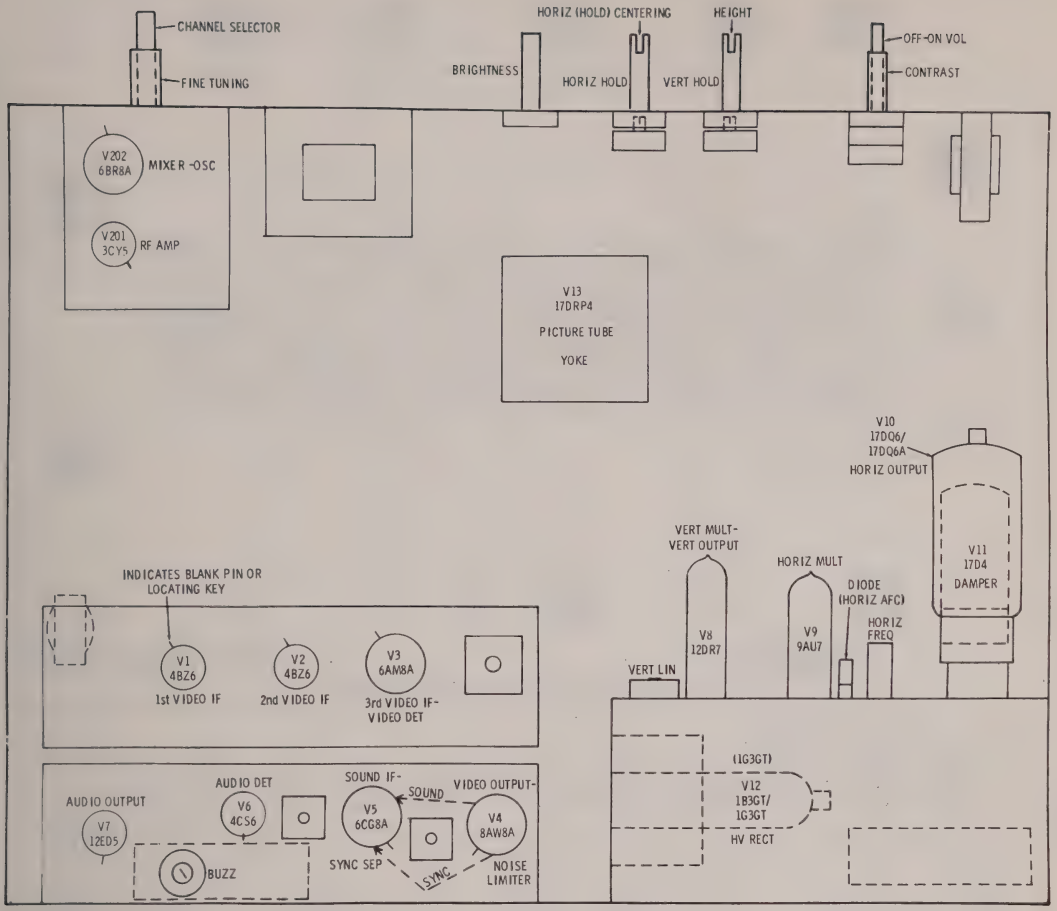
PHILCO CHASSIS 10H25, 10H25R, 10H25U

TUBE PLACEMENT CHART



PHILCO CHASSIS 10H25, 10H25R, 10H25U

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

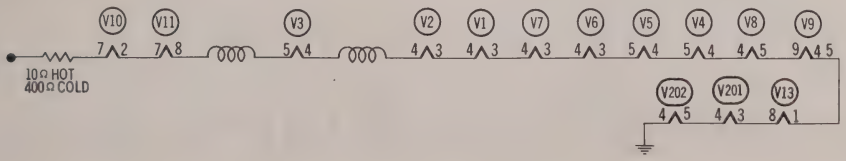
POWER SUPPLY FAILURE
No raster, no sound Fusible Resistor, Rectifiers (B+)

SWEEP FAILURE
No raster, has sound V9, V10, V11, V12, V13
No vertical deflection V8
Poor vert. linearity or foldover V8
Poor horiz. linearity or foldover V9, V10
Narrow picture V9, V10, V11, Rectifiers (B+)
Vert. off freq. V8
Horiz. off freq. Diode (Horiz. AFC), V9

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V13
Has pic, no sound V5, V6, V7

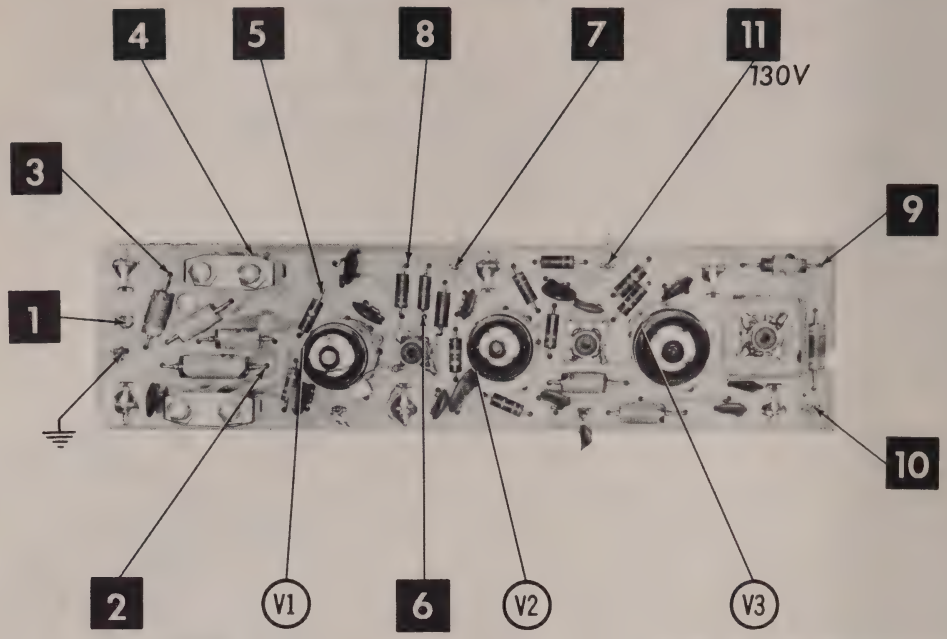
SYNC FAILURE
No vert. sync V5
No horiz. sync Diode (Horiz. AFC), V5
No vert. or horiz. sync V5

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



FOLDER 2

CircuiTrace Numbers 1 thru 11



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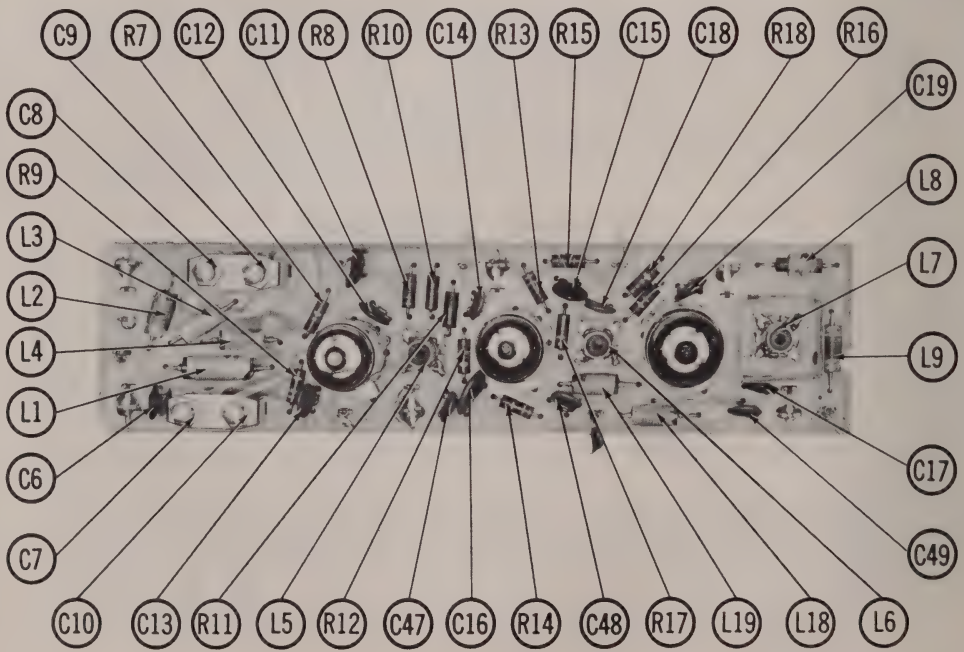
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VIDEO IF PRINTED BOARD



VIDEO IF PRINTED BOARD

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER to PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: Al thru A4 ... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A5 thru All GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of an 8 volt bias supply to point (A). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication on VTVM.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over Mixer-Osc. tube (V202). Low side to chassis.	Not used	47.25MC (400~ 30% AM)	Any non-interfering channel	Vert. Amp. thru 10K to point (B). Low side to chassis. (Across Video Det. load)	Mixer Plate Coil	Temporarily adjust for maximum 400~ indication on scope.
2.	"	"	"	41.25MC	"	"	A1	Adjust for MINIMUM 400~ indication on scope. Bias may be reduced as MINIMUM is approached.
3.	"	"	"	47.25MC	"	"	A2, A3	Adjust for MINIMUM 400~ indication on scope. Bias may be reduced as MINIMUM is approached. Repeat steps 2 and 3.
4.	"	"	"	45.0MC	"	"	Mixer Plate Coil	Reset bias to correct level. Adjust for maximum 400~ indication.
5.	"	"	"	42.7MC	"	"	A4, A5	Adjust A4 and A5 for maximum 400~ indication.
6.	"	"	"	45.75MC	"	"	A6	Adjust for maximum 400~ indication.
7.	"	"	"	44.4MC	"	"	A7	"
8.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	"	65.75MC	4	"	Fine Tuning	Adjust Fine Tuning for MINIMUM 400~ indication on scope.
9.	"	"	69MC (10MC Swp)	67.25MC 70.5MC	"	"		Use only enough sweep generator output to provide a usable pattern on scope. Check for response similar to Fig. 1. If necessary, retouch Mixer Plate Coil to place 67.25MC marker at 50%. Position 70.5MC marker at 50% by retouching A5 and level top of curve with A7. DO NOT retouch A4 or A6.

4.5MC TRAP ALIGNMENT

Use a 4.5MC tuned detector similar to Fig. 2. Before aligning trap, connect the detector to an accurate source of 4.5MC signal and adjust the coil slug for maximum DC voltage output.
Set Contrast control fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.001mfd	High side to point (B). Low side to chassis.	4.5MC (400~ 30% AM)	Any non-interfering channel	DC probe thru detector probe (Fig. 2) to pin 7 (cathode) of picture tube. Common to chassis.	A8	Adjust for MINIMUM deflection on VTVM.

SOUND IF ALIGNMENT

Tune in a TV station, disconnect antenna and adjust Fine Tuning for best picture. DO NOT readjust Fine Tuning during balance of alignment.
Set Buzz control to mid-range.
Connect the antenna and adjust A9 for maximum sound. (A9 will peak at two points. The correct peak is the first peak reached as slug is backed out from full in position.)
Disconnect antenna and adjust A10, and All for maximum sound.
Turn Contrast control counterclockwise and adjust Buzz control for MINIMUM buzz.
Reset Contrast control and SLIGHTLY retouch A10, and All for maximum sound.
Connect antenna and adjust A9 for maximum sound.

FIG. 1

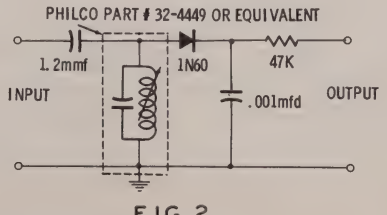


FIG. 2

SET 484 FOLDER 2

TUNER ALIGNMENT INSTRUCTIONS
T-72A, T-73, T-28F

Use an ISOLATION TRANSFORMER to PROTECT the Test Equipment.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools:
A201 thru A204, A210 thru A214 ... General Cement #5009, 8195, 8274, 8275, 8728, 8987
Walsco #2531
A208, A209 ..... General Cement #5004, 5008, 5009
Walsco #2520
Mixer Plate Coil ..... General Cement #8606, 8606L, 8282, 9295
Walsco #2526, 2543, 2544, 2545

VHF OSCILLATOR ALIGNMENT

Set Fine Tuning to mid-range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	209.75MC (400∿ 30% AM Mod)	13	Across Video Det. load.	A201	Adjust for MINIMUM 400∿ indication.
2.	"	"	203.75MC 197.75MC 191.75MC 185.75MC 179.75MC 173.75MC	12 11 10 9 8 7	"	"	Adjust for MINIMUM 400∿ indication. Check that the remaining high channels are within the range of the Fine Tuning. If not, adjust the appropriate coil by bending toward or away from the wafer. Recheck to see that other channels have not been seriously affected.
3.	"	"	81.75MC 75.75MC	6 5	"	A202	Adjust for MINIMUM 400∿ indication.
4.	"	"	65.75MC 59.75MC	4 3	"	A203	"
5.	"	"	53.75MC	2	"	A204	"

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point (T). Positive to chassis.
Connect a 10 to 20mmf capacitor across Mixer Plate Coil.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point (U). Low side to chassis.	A205, A206, A207	Coils not containing adjustable cores are adjusted by expanding or compressing coil turns. Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
7.	"	"	"	211.25MC 215.75MC	"	"	C206 & C209	Adjust spacing between C206 and C209. Moving ungrounded leads of C206 and C209 closer together narrows the bandwidth and moving them away increases the bandwidth. Adjust for bandwidth shown in Fig. 201.
8.	"	"	177MC	175.25MC	7	"	A208, A209	Adjust to obtain correct tilt on top of curve as in Fig. 202 to compensate for the tuning effect of channel 13.
9.	"	"	213MC	213MC	13	"		Retouch A206 and A207 for symmetrical response centered about marker. To retouch compress or expand cores SLIGHTLY. Repeat steps 8 and 9 alternately until optimum response is obtained on channels 7 & 13.
10.	"	"	85MC	85MC	6	"	A210, A211, A212	Turn A210 counterclockwise until a single peak appears. (DO NOT unscrew far enough to allow the core to fall out.) Adjust A211 until peak falls at 85MC. (It may be necessary to increase sweep generator output) Adjust A212 for maximum amplitude and symmetry of single peak.
11.	"	"	"	83.25MC 87.75MC	"	"		Retouch A210 and A211 for response similar to Fig. 203.
12.	"	"	"	43.5MC (400∿ 30% AM Mod)	4	Vert. Amp. across Video Det. load.	A213	Adjust for MINIMUM scope indication.

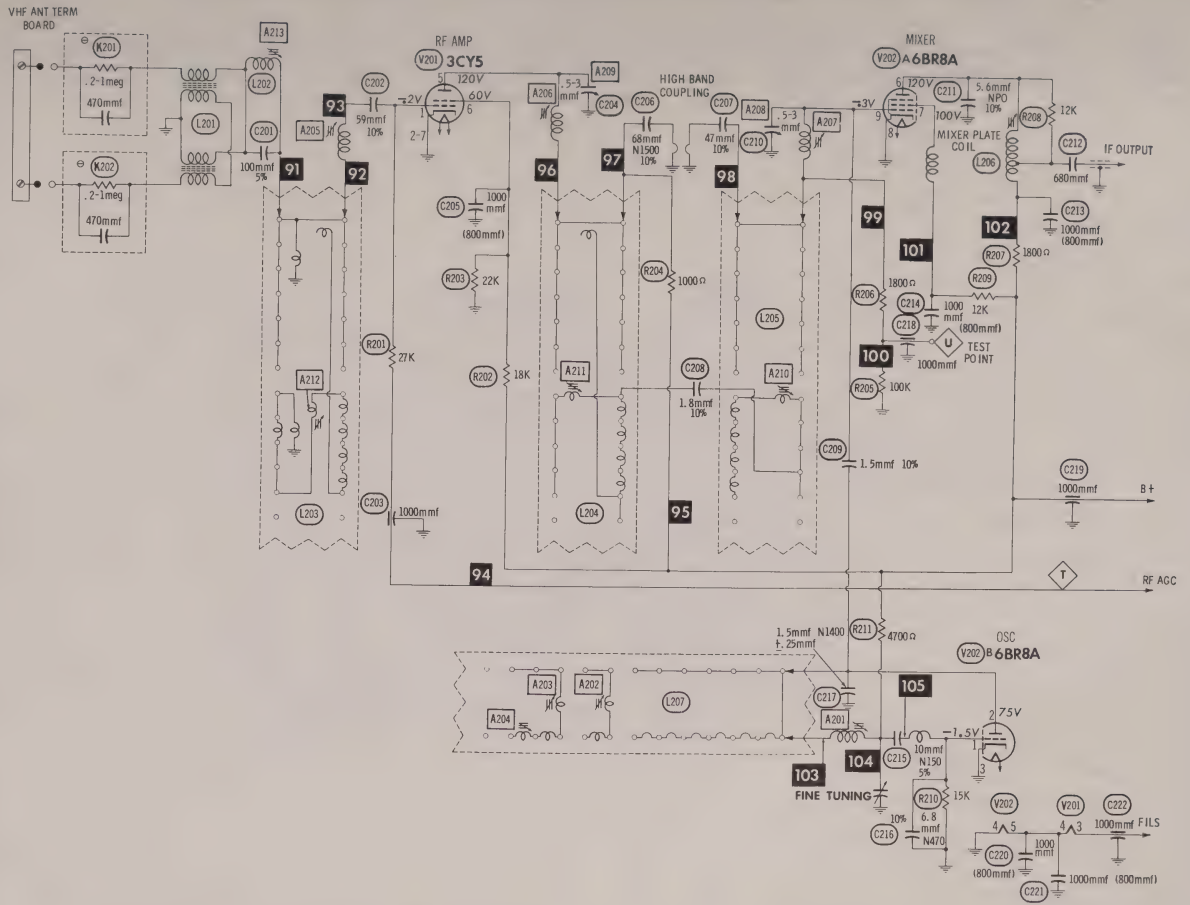
UHF IF ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω Carbon Resistors	Across UHF antenna terminals with 120Ω in each lead.	Not used	43.5MC (400∿ 30% AM Mod)	UHF	Vert. Amp. to point (U). Low side to chassis.	A214	Adjust for a symmetrical response.

UHF ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

CONTINUED PAGE 19



A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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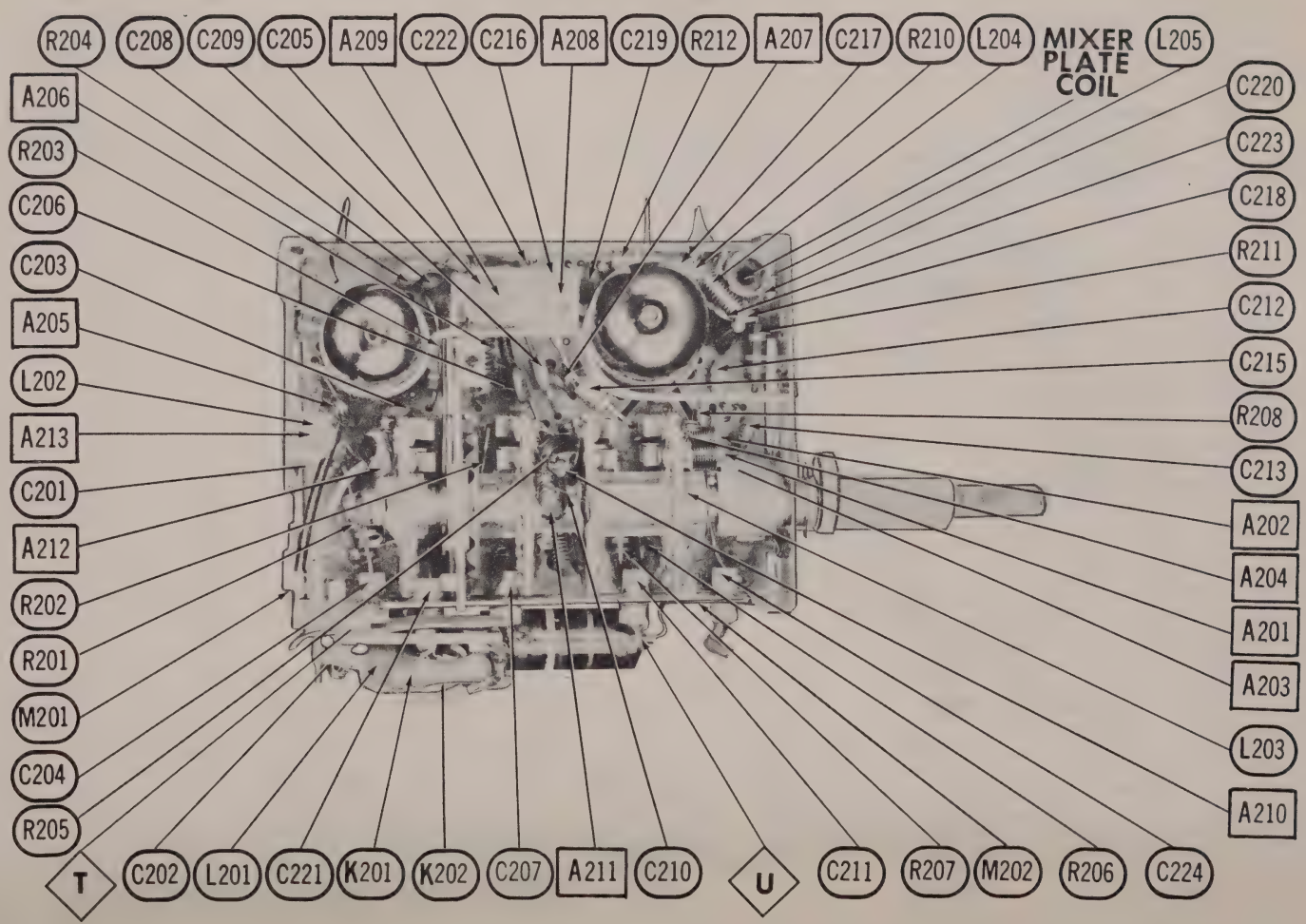
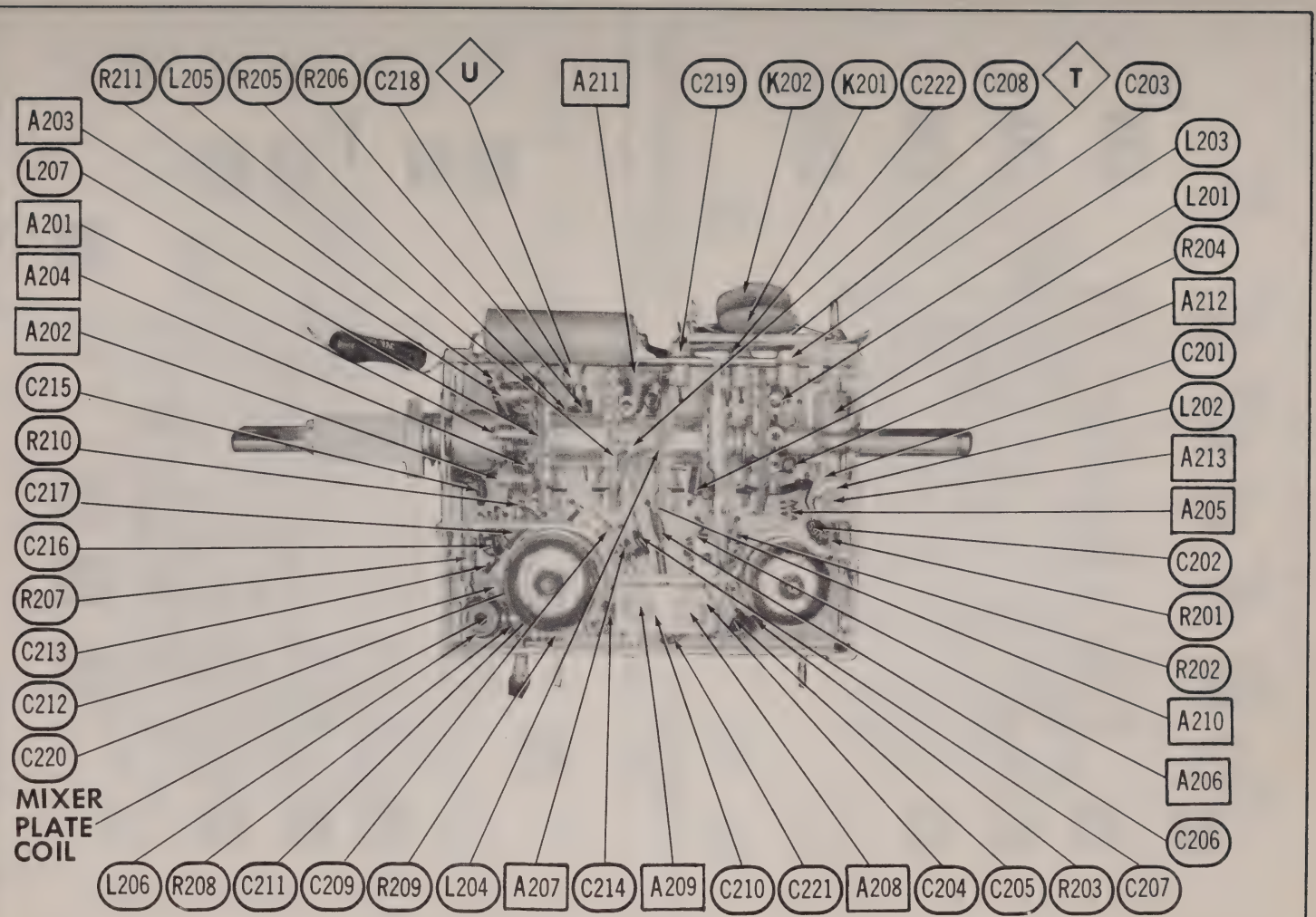
VHF TUNER 76-10528-1 (T-72A)

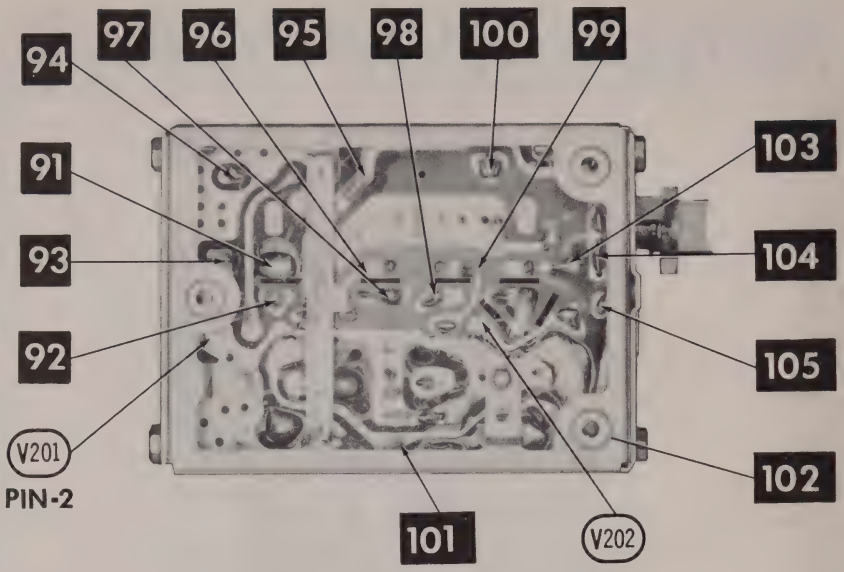
PHILCO CHASSIS 10H25, 10H25R, 10H25U



VHF TUNER With UHF Provisions 76-10529 (T-73) - TOP VIEW



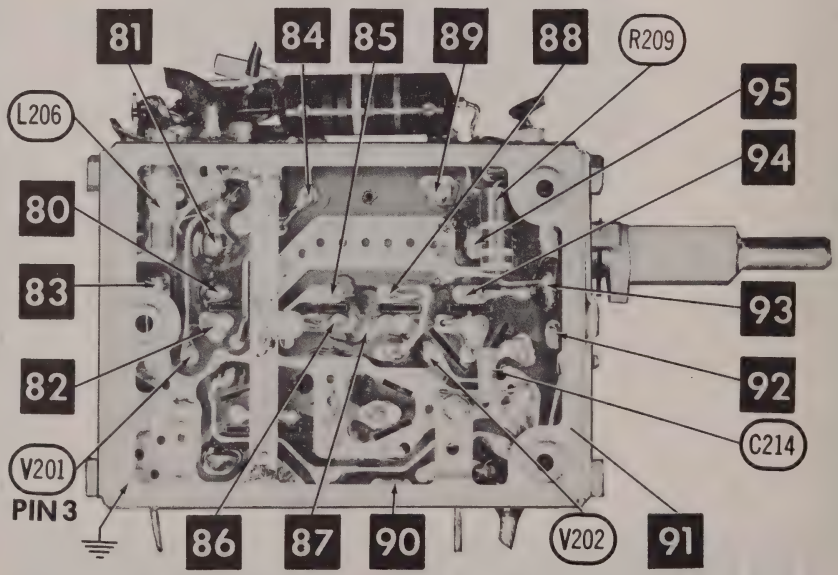
VHF TUNER 76-10528-1 (T-72A) - TOP VIEW



A Howard W. Sams CIRCUITRACE* Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER 76-10528-1 (T-72A) - BOTTOM VIEW



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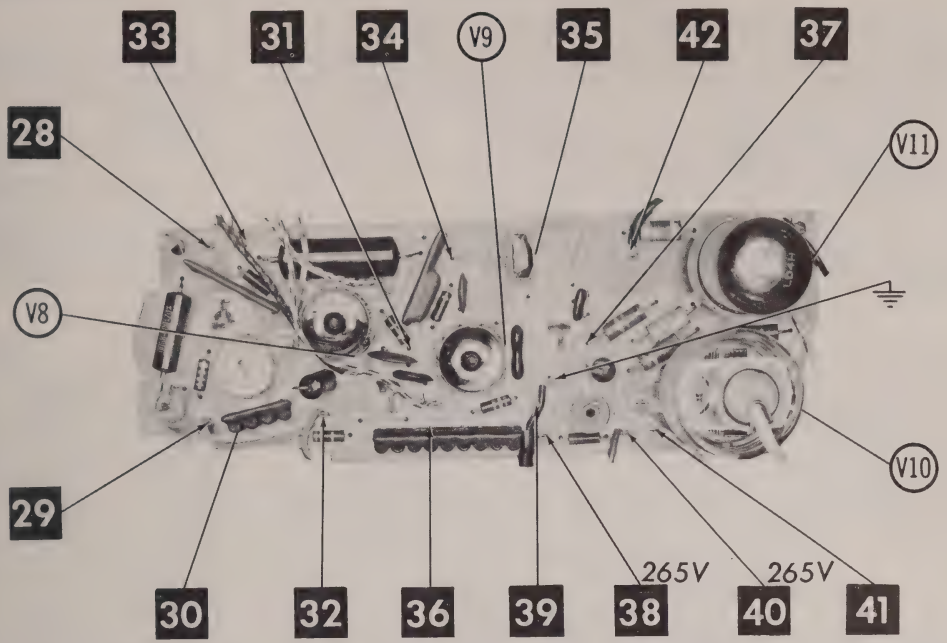
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER with UHF Provisions 76-10529(T-73)-BOTTOM VIEW

CircuiTrace Numbers 28 thru 42



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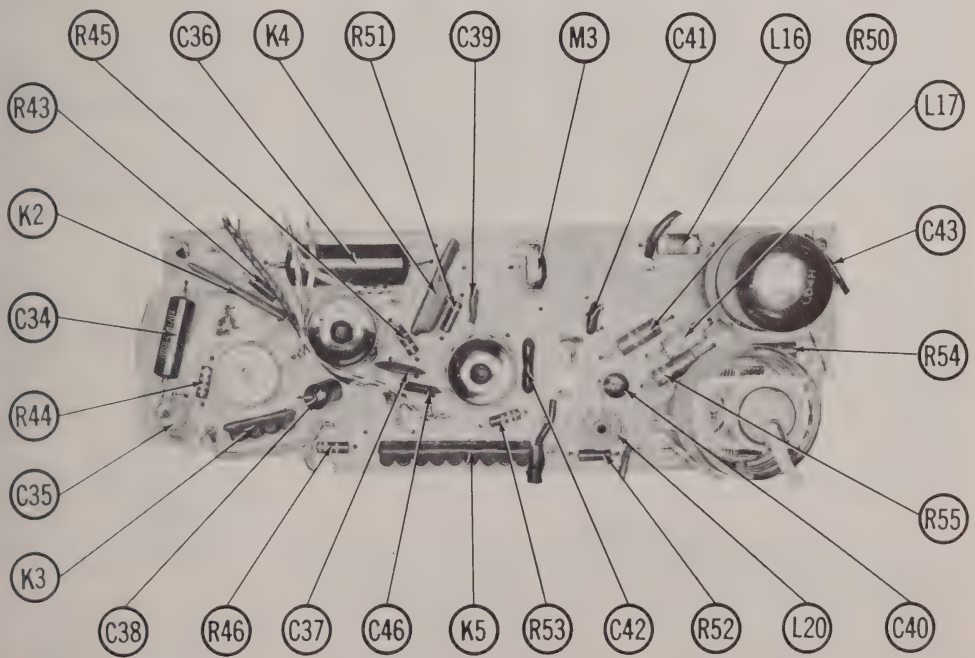
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

SWEEP PRINTED BOARD



SWEEP PRINTED BOARD

PHILCO CHASSIS 10H735, 10H735U

TUBES

ITEM No.	CBS	GENERAL ELECTRIC	RAYTHEON	SYLVANIA
	USE	TYPE	USE	TYPE
V1	1st Video IF Amp.	4BS8		
V2	2nd Video IF Amp.	4BS8		
V3	3rd Video IF Amp. - Video Det.	6AM8A	Audio Output	12ED5
V4	Video Output-Noise Limiter	8AW8A	Vert. Blank.-Vert. Output	12GB5
V5	Sound IF Amp.-Sync Sep.	6CG8A	Horiz. Mult.	8AU7
V6	Audio Detector	6C8	Horiz. Output	17DQ8A/17DQ8A
V7			Damper	17D4
V12			HV Rect.	1B3GT/1G3GT (1G3GT)*

* Alternate.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	PHILCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V13	17CBP24					

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP	VOLT	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	125	200	30-2288-76	AFH1-31-35	CD65	FP139-1	TM3-40	TVL5-4004* TVL5-4705.5*	
C2A	≠140	350	30-2590-41	AFH54-112-05	D0695.7				
B	≠100	350							
C	≠10	450							
D	20	350							
C3A	≠20	300	30-2580-00	AFH3-177-00		*FP238 *TC1888		*TVL8-3580, 10*	
B	≠100	300							
C	100	50							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the ranges column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	.1 200V		P388N-1	DF-104	CUB2P1	22DP-3-104	GEM-401	2TM-P1	
C5	.22 300V		P388N-22		CUB2P22	22DP-4-224	GEM-4022	2TM-P22	
C6	3-3		NPO-DI 3.3	DTN-3R2	C10V33C	CCTO-3R3	CNO-533	10TCC-V33	
C7	.5-3	#SI-6535-1		829-3		CY-I	CC565		
C8	.5-3	#SI-6535-1		829-3		CY-I	CT565		
C9	1-5	#SI-6535-2 #SI-6535-3		829-5					
C10	1-5			829-5					
C11	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP310	5HK-D20	
C12	880		BPD-00068	DD-881	BYA10T68	CCD-881	GP368	10T8-T68	
C13	470 10%		UK-470	DD-471	22B1S47	CCD-471	GP347	10T5-T47	
C14	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP310	5HK-D10	
C15	880		BPD-00068	DD-881	BYA10T68	CCD-881	GP368	10T5-T68	
C16	27 10%		UK-27	DD-270	22B1S27	CCD-270	GP327	10T5-U27	
C17	680		BPD-00068	DD-881	BYA10T68	CCD-881	GP368	10T5-T68	
C18	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP310	5HK-D10	
C19	5		NPO-DI 5.0	DTZ-4R1	C10V5C	CCTO-050	CNO-547	10TCC-V50	
C20	50		BPD-00033	DD-331	L10T33	CCD-331	GP333	10T5-T33	
C21	.033 300V		P388N-033	DD-303	CUB4S33	42DP-3-333	GEM-4123	4TM-S33	
C22	5600 10%		DE-5600		CUB4S56	CCD-563	GEM-14256	4UT5-D56	
C23	.047 400V		P488H-047	DD-503	CUB4S47	42DP-3-473	GEM-4147	4TM-S47	
C24	47		BPD-00047	DD-470	L04Q47	CCD-470	GP347	5T5-Q47	
C25	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP310	5HK-D10	
C26	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10T5-T47	
C27	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP310	5HK-D10	
C28	1 200V		P388N-1	DF-104	CUB2P1	22DP-3-104	GEM-401	2TM-P1	
C29	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP310	5HK-D10	
C30	2-5 NT50	#30-1263-44			CUV1B1				
C31	8200		DAC-26	DD-822	BYA10D2	CCD-822	UAC-260	BL-D80	
C32	8200		DAC-26	DD-822	HVK16D8	CCD-822	UAC-260	BL-D80	
C33	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP310	5HK-D10	
C34	.0068 400V		P488H-0068	DE-682	CUB4D68	62DP-1-682	GEM-6268	6TM-D68	
C35	.15 100V		P388H-15		CUB3P15	32DP-3-154	GEM-3015	3TM-P15	
C36	.1 400V		P488N-1	DP-104	CUB4P1	42DP-3-104	GEM-401	4TM-P1	
C37	50000 50V		BPD-05	DD-503	L05D5	1DP-3-503	GP305	5HK-D50	
C38	.0015 1000V		P10B5N-0015	DD-152	CUB10D15	1EDP-1-152	GEM-10215	10TM-D15	
C39	5900		BPD-0904	DD-592	BYA10D4	CCD-592	GP310	10T5-D59	
C40	.0039 400V 10%		V84C6D4-10%		PM6D4	62DP-1-392	FL-239	6TM-D4	
C41	47 10%		1469-000047	TC2-47	22B1S47	CM-19B-470K	MC3S47	MS-447	
C42	390 10%		1469-00039		22B1S39	CM-19B-390K	MC3S43	MS-339	
C43	1000		BPD-02	DD-203	BYB602	CCD-203	GP120	5HK-S20	
C44	.033 400V 10%		V84C4S22-10%		PM4S22	42DP-3-332	GEM-4S22	4TM-S22	
C45	150 5000V		BYD-50-150	DD60-151		6CCD-151	6HV-315	60A-T15	
C46	1500		BPD-0015	DD-152	BYA10D15	CCD-152	GP315	5HK-D15	
C47	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP310	5HK-D10	
C48	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP310	5HK-D10	
C49	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP310	5HK-D10	
C50	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP310	5HK-D10	
C51	.1 600V		P488H-1	DP-104	CUB4P1	62DP-4-104	GEM-601	6TM-P1	
C52	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10T5-T47	

* Philco Part Number.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CAROSTAT PART No.	CTS—IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1.25 meg		33-5502-48	F1-53	RTV-680	⊕ UE4113-B		Contrast, Note 1
B	1.5 meg			R2-69		—		Volume, Note 1
C	Switch			KN-1		—		Power Off-On
R2A	75K		33-5502-53	F1-90		⊕ UE4112		Vert. Hold
B	3.4 meg			R1-78		—		Height
R3A	400K		33-5502-43	F1-29		⊕ UE4114		Horiz. Hold
B	250K			R2-34		—		Horiz. Hold Centering
R4A	250K		33-5508-31	F1-34		FA3541, OE-1250		Brightness
B	Shaft			Not Req.				

PARTS LIST AND DESCRIPTIONS

CONTROLS (cont)

ITEM No.	RATING		REPLACEMENT DATA					
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CAROSTAT PART No.	CTS—IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R5	5000	(1/W)	33-5591-8				FP1.50C	Brite
R6	15000	(1/W)	33-5591-10				FP1.5K *	Vert. Lin.
	10001 Stop							

* Use 3300 series resistor.

† "Concentrite" Equivalent: E-8 Kit with Base Elements & Shafts: (Not available as a factory assembled unit.) — Bil-135, P17-106 (Panel); Bil-240, R18-005 (Rear); RS (Retainer)

† "Concentrite" Equivalent: E-8 Kit with Base Elements & Shafts: (Not available as a factory assembled unit.) — Bil-123, P17-106 (Panel); Bil-135, R18-005 (Rear); RS (Retainer)

† "Concentrite" Equivalent: E-8 Kit with Base Elements & Shafts: (Not available as a factory assembled unit.) — Bil-139, P17-106 (Panel)

Note 1. Some versions may use 1.5meg Contrast, 5.5meg Volume (Part #33-5502-39).

■ "STA-LOC" Equivalent: FA15SR, RU815L, OS115, US815, UB4L

▲ "STA-LOC" Equivalent: FA75SL, RU46L, OS115, IB437.

● "STA-LOC" Equivalent: FB54L, RU354L, OS115, IB437.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS
R7	22K		R27	220K		R47	6.5meg	
R8	330Ω		R28	1meg		R48	330K	
R9	470		R29	18K		R49	1.5meg	
R10	1000Ω		R30	5100Ω	(4500Ω) *	R50	18K 1W	
R11	5300Ω		R31	220K		R51	12000	
R12	27K		R32	15K		R52	1500Ω	
R13	330Ω		R33	1500Ω		R53	68K	
R14	68Ω		R34	220K		R54	15K 1W	
R15	330Ω		R35	6800Ω 2W		R55	6800Ω 1W	
R16	18K		R36	8300Ω 1W		R56	2200Ω	
R17	330Ω		R37	1meg		R57	220Ω	
R18	220Ω		R38	330K		R58	220Ω	
R19	3300Ω		R39	220Ω 1W		R59	5.6Ω	
R20	220K		R40	470K		R60	10Ω (Hot) 4000Ω (Cold)	#33-1343-17 Note 1
R21	680K		R41	82Ω		R61	4700Ω 1W	#33-1335-144
R22	6800Ω		R42	1.5meg		R62	56K 1W	
R23	33K 1W		R43	1.5meg		R63	120K 1W	
R24	68Ω		R44	1.5meg		R64	4300Ω 4W	#33-1363-30
R25	5600Ω		R45	1.5meg		R65	1500Ω 1W	
R26	180K		R46	6.5meg				

* Alternate Value. # Philco Part Number

Note 1: Chassis 10H35U uses Part #33-1343-12 (3.5Ω Hot, 2000 Cold).

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	REPLACEMENT DATA	
			PHILCO PART No.	
X1	Sync Sep. Grid	270mmf, 8000mmf, 680K, 680Ω, 1meg	30-6525-3	
X2	Vert. Integrator	150mmf, 4000mmf, 8000mmf, 33K, 27K, 90K	30-6030-9	
X3	Vert. Feedback	1500mmf, 2200mmf, 33K, 68K	30-6509-1	Sprague V-37
X4	Horiz. AFC	82mmf, 2000mmf, 1000mmf, .047mfd @ 50V, 82K, 150K, 680Ω, 1.5meg	30-6030-3	Sprague C-11
X5	Horiz. Mult. Plate	470mmf, 820mmf, 3300mmf, 4700mmf, 6800mmf, 39K, 470K, 560Ω, 5.7meg	30-6526-4	
X6	Control Panel Isolation	1500mmf, 1.75-3.5meg	30-6040-2	Sprague PRC-19

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						
		PHILCO PART No.	Cramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Rem PART No.	NOTES
L1	47.25MC Trap Coil	32-4645-32	19-1001	19-1001	BC-582	4804		
L2	47.25MC Trap Coil	32-4645-19	19-1002	19-1002	BC-583	4806		
L3	41.25MC Trap Coil	32-4645-34						
L4	1st Video IF Coil	32-4645-36	19-3001	19-3001	TV-189	6115	VP-9	
L5	2nd Video IF	32-4686-2						
L6	3rd Video IF	32-4686-3						
L7	4th Video IF	32-4686-4						
L8	RF Choke	32-4674-1	19-6022	19-6022	TV-192	6152		22uh
L9	Resonat Choke	32-4645-7						3uh
L10	Shunt Peaking Coil	32-4782-13	19-3500	19-3500	TV-203	6138	VP-8	470uh
L10A	4.5MC Trap	32-4688-2						
B	Sound Take-off							
L12	Shunt Peaking Coil	32-4782-3 †	19-3800	19-3800	TV-204	6146		560uh
L13	Series Peaking Coil	32-4782-10	19-3330	19-3330	TV-200	6132	VP-7	330uh
L14	Sound IF Trans.	32-4768-1	17-3498	17-3498		6303-PC		
L15	Quadrature Coil	32-4864-18						
L16	RF Choke	32-4112-63	19-1005	19-1005	BC-598	4813		9uh
L17	RF Choke	32-4112-63	19-1005	19-1005	BC-598	4813		9uh
L18	FIL. Choke	32-4645-35						2.5uh
L19	FIL. Choke	32-4645-35						2.5uh

† Includes R23 (6800Ω).

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						
	PRI.	SEC.	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Miller PART No.	Rem PART No.	Thordarson PART No.	NOTES
L20	150Ω		33-4764-3						Horiz. Stabilizer

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ^C/T	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Rem PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L31	.270A	36Ω	1 H.	32-4710-6	28C44			C-2543 ①	28C44	C-32X

① Drill new mounting hole.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		PHILCO PART No.	Halldorson PART No.	Merit PART No.	Rem PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	Vert. Output	32-8229-4	28C75 ①	A-3183 ①		VO-105 ①	28C75 ①	A-10BX	
T2	Yoke-Horiz. (24MH) (10Ω)-Vert. (58MH)	76-10908-9							
	Yoke Rear Cover & Clamp Assy.	76-11644-1						TC-2G	
T3	Horiz. Output	33-8856-2						D-17S *	

① Use 8 to 1 turns ratio.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Rem Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
5							5
3							3 & 7
2							2
1							1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Rem PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	6500Ω	3-4Ω	32-8747-3	26B5I ①	A-3088	AU-401 ①	A-3871 ①	26B5I ①	S-8X	

① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. VMP	PHILCO PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	36-1655-17	4AJ	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	PHILCO PART No.	INTERNATIONAL PART No.	IT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.270A	34-8048-1 *	5E4 *	HY504 *	M560 *	SR500 *	* Silicon Type.
M2	.270A	34-8048-1 *	5E4 *	HY504 *	M560 *	SR500 *	+ Dual Diode (Sel.)
M3		34-8027 * †	SD91 * †	KIB3			† 2 Required

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M4	Tuner	76-10528-1	VHF (T72A)
	Tuner	76-10529	VHF with UHF provisions (T73)
	Tuner	76-10587-1	UHF (T28F)
M5	Antenna	78-1158-1	72Ω Type 47A-386, All Models except 13C5SBL, L, WL
	Printed Board	54-8655-1	Video IF
	Printed Board	54-8684-2	Video & Sound
	Printed Board	54-8686-1	Deflection

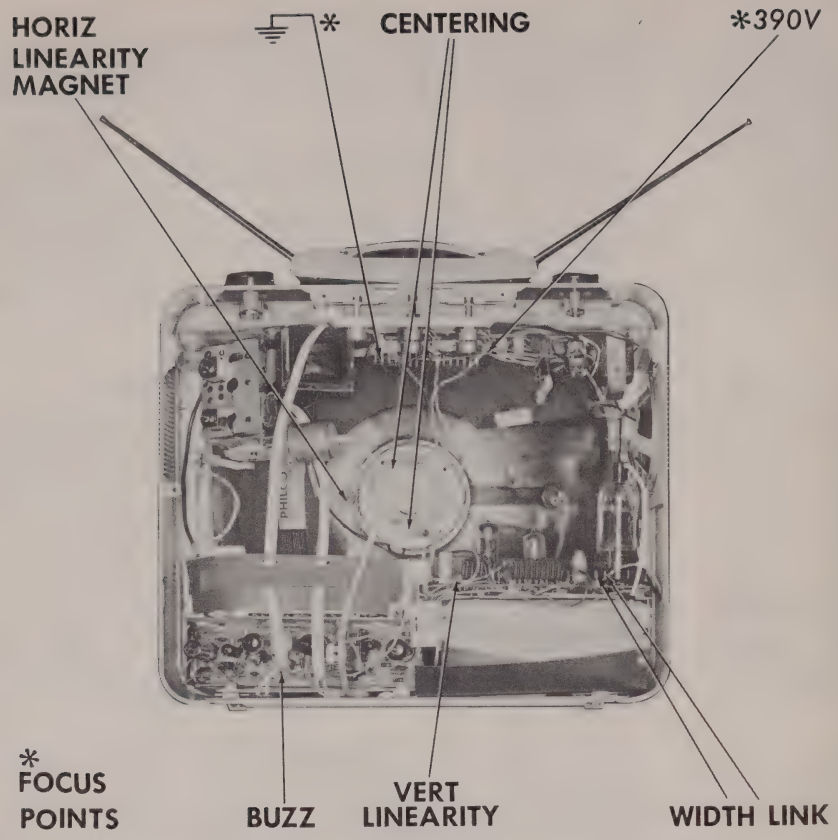
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

WIRING DATA

High Voltage Lead	Use BELDEN No. 8889
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8404 (Tinl) or 8404 (Round) - 4 Conductor 8405 (Round) - 5 Conductor 8408 (Round) - 8 Conductor

FOLDER 2



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a station signal. Allow the receiver to warm up. Connect a clip lead across the Horizontal Stabilizing Coil (120).

Set the Horizontal Hold to the center of its range.

Adjust the Horizontal Hold Centering (R3B) until the picture appears to float back and forth across the screen.

Remove the clip lead from across L20 and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally.

TUNER PARTS LIST AND DESCRIPTIONS

T-72A

TUBES

◆ CBS ◆	GENERAL ELECTRIC ◆		◆ RAYTHEON ◆	SYLVANIA ◆	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	3CY5	V202	Mixer-Osc.	6BR8A

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	100 5%			DTZ-100	C10T1C		CNO-310	10TCC-T10
C202	59 10%	#76-10896-27						
C203	1000		EF-001	MFT-1000		CCF-102	CT280A	
C204	.5-3			829-3		VC-1	CT565	
C205	1000	(800mmf)*	BPD-001	DD-102	DD-102	CCD-102	GP210	5HK-D10
C206	68 N1500 10%	#76-10896-29				* *		
C207	47 10%		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C208	1.8 10%	#76-10896-33						10TCC-V18
C209	1.5 10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C210	.5-3			829-3		VC-1	CT565	
C211	5.6 NPO 10%	#76-10896-35						10TCC-V56
C212	680		BPD-00068	DD-681	BYA10T68	CCD-681	GP368	10TS-T68
C213	1000	(800mmf) *	BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C214	1000	(800mmf) *	BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C215	10 N150 5%	#76-10896-31				* *		10TCP-Q10
C216	6.8 N470 10%	#76-10896-32				* *		
C217	1.5 N1400 ±.25mmf	#30-1224-133				* *		
C218	1000		EF-001	MFT-1000		CCF-102	CT280A	
C219	1000		EF-001	MFT-1000		CCF-102	CT280A	
C220	1000	(800mmf)*	BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C221	1000	(800mmf) *	BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C222	1000		EF-001	MFT-1000		CCF-102	CT280A	

\# Philco part number. * Alternate value.
** Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R201	27K	
R202	18K	
R203	22K	
R204	1000Ω	

ITEM No.	RATING	REMARKS
R205	100K	
R206	1800Ω	
R207	1800Ω	
R208	12K	

ITEM No.	RATING	REMARKS
R209	12K	
R210	15K	
R211	4700Ω	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA	
K201	Antenna Filter	470mmf, .2-1meg	30-6040-1 Ⓓ	Centralab	RC-471
				Sprague	AC1-1
K202	Antenna Filter	470mmf, .2-1meg	30-6040-1 Ⓓ	Centralab	RC-471
				Sprague	AC1-1

Ⓓ Some versions may use Part #30-6028-1.

COILS (RF-IF)

ITEM No.	USE	PHILCO PART No.	NOTES
L201	Ant. Trans.	†	
L202	IF Trap Coil	†	
L203	Ant. Coils	*	Channel 2-13
L204	RF Coils	*	Channel 2-13

ITEM No.	USE	PHILCO PART No.	NOTES
L205	Mixer Grid Coils	*	Channel 2-13
L206	Mixer Plate Coil	76-10896-36	
L207	Osc. Coils	*	Channel 2-13

† Part of Rear Plate Assy. (Part #76-10896-11).
* Part of Switch Assy. (Part #76-10896-37).

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
	Fine Tuning Rotor	76-10896-4	
	Fine Tuning Shaft	76-10896-7	Nylon
	Switch Assembly	76-10896-37	Complete, Less Fine Tuning Components
	Printed Panel	76-10896-9	Includes Wiper Contacts, Tube Sockets & Fine Tuning Stator
	Printed Panel	76-10896-10	Includes All Components

TUNER PARTS LIST AND DESCRIPTIONS

T–73

TUBES

ITEM No.	USE	TYPE
V201	RF Amp.	3CY5
V202	Mixer–Osc.	6BR8A
V203	UHF Osc.	3AF4A

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	PHILCO PART No.	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	20 NPO 10%		NPO-DI 20	DTZ-20	C10Q2C	CCTO-200		10TCC-Q20
C202	100 5%	76-10896-26		DTZ-100			CNO-310	10TCC-T10
C203	59 N1500 10%	76-10896-27				*		
C204	1000		EF-001	MFT-1000		CCF-102		
C205	.5-3			829-3		CV-1	CTA-565	
C206	68 N1500 10%	76-10896-29		TCL-68		*		
C207	1000		EF-001	MFT-1000		CCF-102		
C208	800		BPD-0008	DD-801	L10T8	CCD-801	GB382	5GA-T8
C209	47 10%		DI-47	DD-470	L10Q47	CCD-470	CNO-447	10TS-Q47
C210	2.2 10%			DTZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C211	1000		EF-001	MFT-1000		CCF-102		
C212	6.8 N470 10%	76-10896-32				*		
C213	10 N150 5%	76-10896-31				*		
C214	1.5 N1400 ±.25mmf	30-1224-133				*		
C215	1.5 10%			TCZ-1R5	CTA6V15C		CNO-515	10TCC-V15
C216	.5-3			829-3		CV-1	CTA-565	
C217	5.6 NPO 10%	76-10896-35						10TCC-V56
C218	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	5GA-T8
C219	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	5GA-T8
C220	680		BPD-00068	DD-681	L10T68	CCD-681	GP368	5GA-T68
C221	1000		EF-001	MFT-1000		CCF-102		
C222	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	5GA-T8
C223	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	5GA-T8
C224	1000		EF-001	MFT-1000		CCF-102		
C225	.68	30-1221-11		TCZ-R68				
C226	30	76-10170						
C227		3W27872						
C228	1-4	31-6520				CV-2		
C229A	22		DI-22	DD-220	L10Q22	CCTO-220	CNO-422	5GA-Q22
B	22		DI-22	DD-220	L10Q22	CCTO-220	CNO-422	5GA-Q22
C230	1000		EF-001	MFT-1000		CCF-102	CT280A	
C231	1000		EF-001	MFT-1000		CCF-102	CT280A	
C232	1000		EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributors stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	PHILCO PART No.	NOTES
R201	27K		66-3278340	
R202	1000Ω		66-2108340	
R203	18K		66-3188340	
R204	22K		66-3228340	
R205	560Ω		76-10897-10	
R206	100K		66-4108340	
R207	2700Ω		66-2278340	
R208	15K		66-3158340	
R209	3900Ω	1	66-2394340	
R210	5600Ω		66-2568340	Note 1
R211	1800Ω		66-2188340	
R212	12K		66-3128340	
R213	470K		66-4478340	
R214	5600Ω		66-2568340	

Note 1. Tuners stamped Run 2 use 12K in this application (Part #66-3128340).

COILS (RF-IF)

ITEM No.	USE	PHILCO PART No.	NOTES
L201A	Ant. Trans.	†	
B	Trap Coil	†	
L202	Trap Coil		
L203	Ant. RF Mixer Grid & Osc. Coils	Channel 2-13 Includes rotor assy.	
L204	IF Link Coil		Note 1
L205	Mixer Plate Coil	76-10896-36	
L206	UHF IF Input Coil	76-10897-11	

† Part of M201. Note 1. Not used in tuners marked Run 2.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA	
K201	Ant. Input	.2-1meg, 470mmf	30-6028-1 †	Centralab	RC-471
				Sprague	AC1-1
K202	Ant. Input	.2-1meg, 470mmf	30-6028-1 †	Centralab	RC-471
				Sprague	AC1-1

† Part of M201.

TUNER PARTS LIST AND DESCRIPTIONS (Continued)

T–73

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M201	Rear Plate Assy.	76-10897-4	Includes antenna matching transformer, L201A, IF Traps, L201B, L202, Antenna Blocking Networks, K201, K202, Antenna lead and strain relief
M202	Feed Thru Plate	76-10897-6	Includes C204, C207, C211, C221 & C224
	Wiper Spring	76-10896-6	Fine Tuning (Hair pin type) Rotor grounding
	Tuning Core	76-10896-2	Osc. Tuning, Brass, Channels 2, 4, 6, 13
	Tuning Core	76-10897-12	Iron, Channel 1
	Tuning Core	76-10896-3	Iron, Channel 6
	Printed Board	76-10897-2	Wiper Contacts, Tube Sockets and Fine Tuning Stator only
	Printed Board	76-10897-3	Includes all components

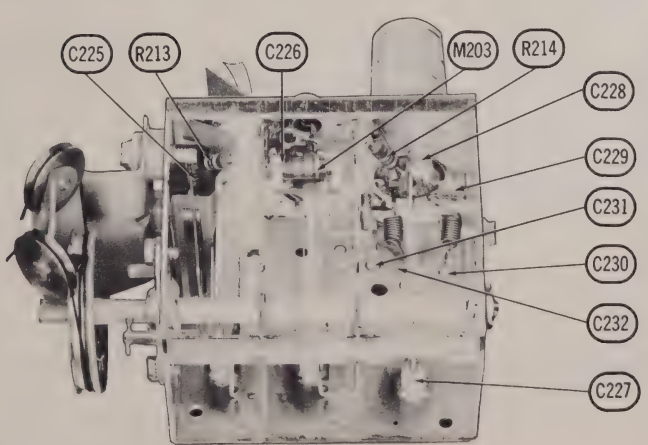
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		PHILCO PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M203	1N82A	34-8027	1N82A	1N82A	1N82A	UHF Mixer (Clip-in)

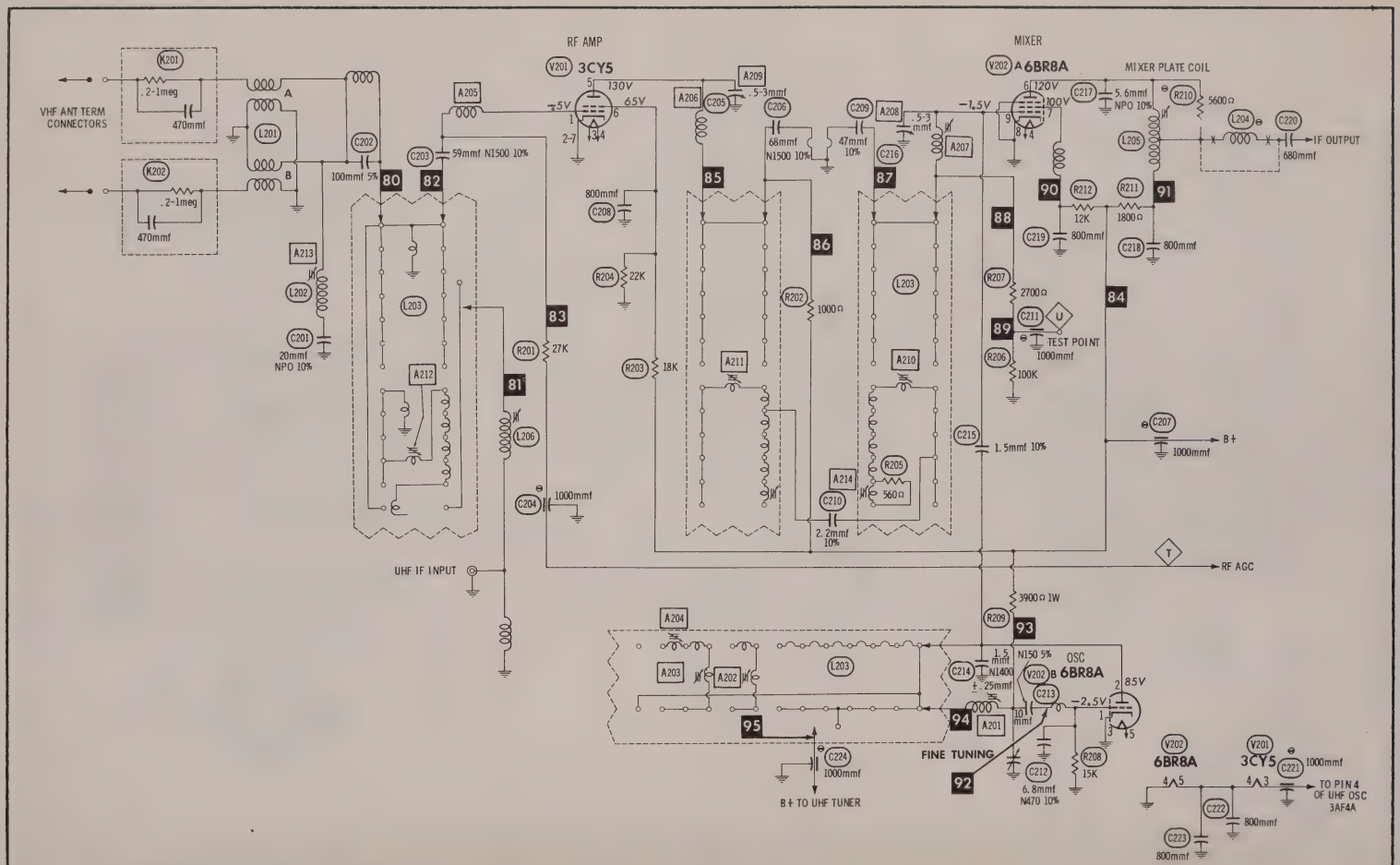
REMOTE TUNING PARTS LIST & DESCRIPTION

PART NAME	PHILCO PART No.	NOTES
Bulb	54-6976	Control
Connector	54-6974	Tubing to Bulb
Cylinder	76-11560	Assembly
Piston	76-10990-1	Assembly

PART NAME	PHILCO PART No.	NOTES
Switch	42-2105	Remote Off
Tubing	L3543-3	15ft, Coupling to Bulb
Tubing	L3543-2	Cylinder to Coupling
Wheel	54-9890	Stepper



UHF TUNER 76–10687–1 (T–28F)



A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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VHF TUNER WITH UHF PROVISIONS 76-10529 (T-73)

TUNER ALIGNMENT INSTRUCTIONS (Con't)
T-72A, T-73, T-28F

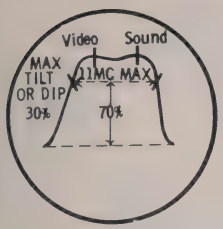


FIG.201

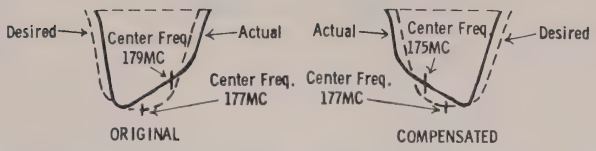


FIG.202

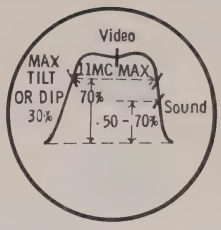
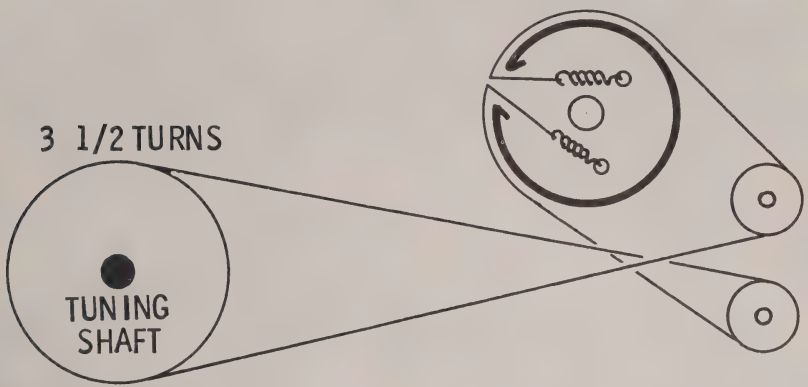
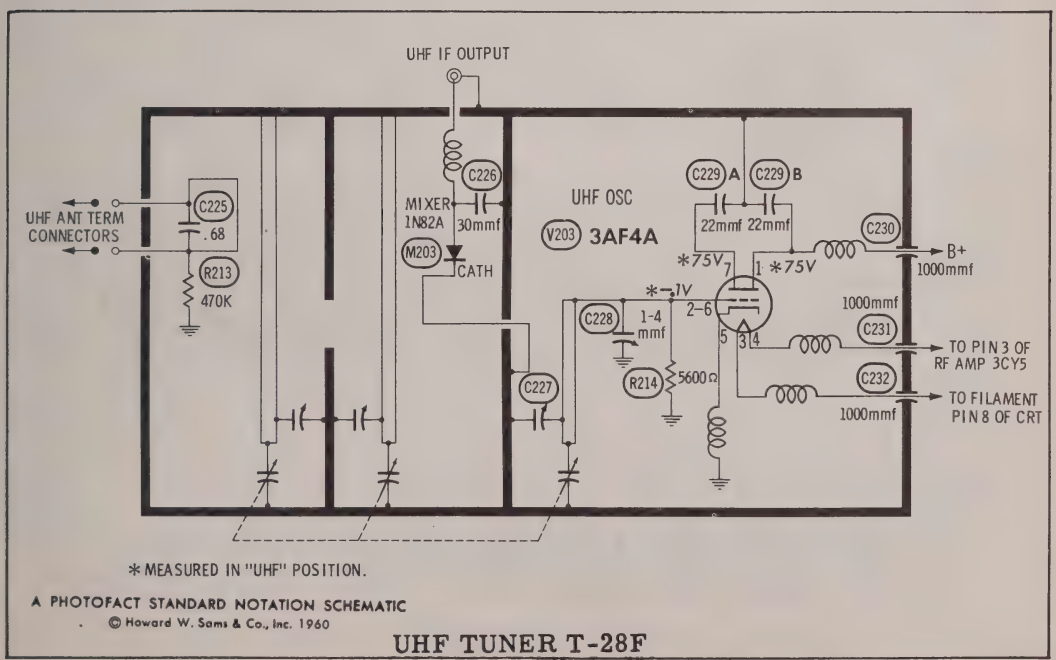


FIG.203



PULLEY ON TUNING SHAFT

UHF DRIVE CORD STRINGING



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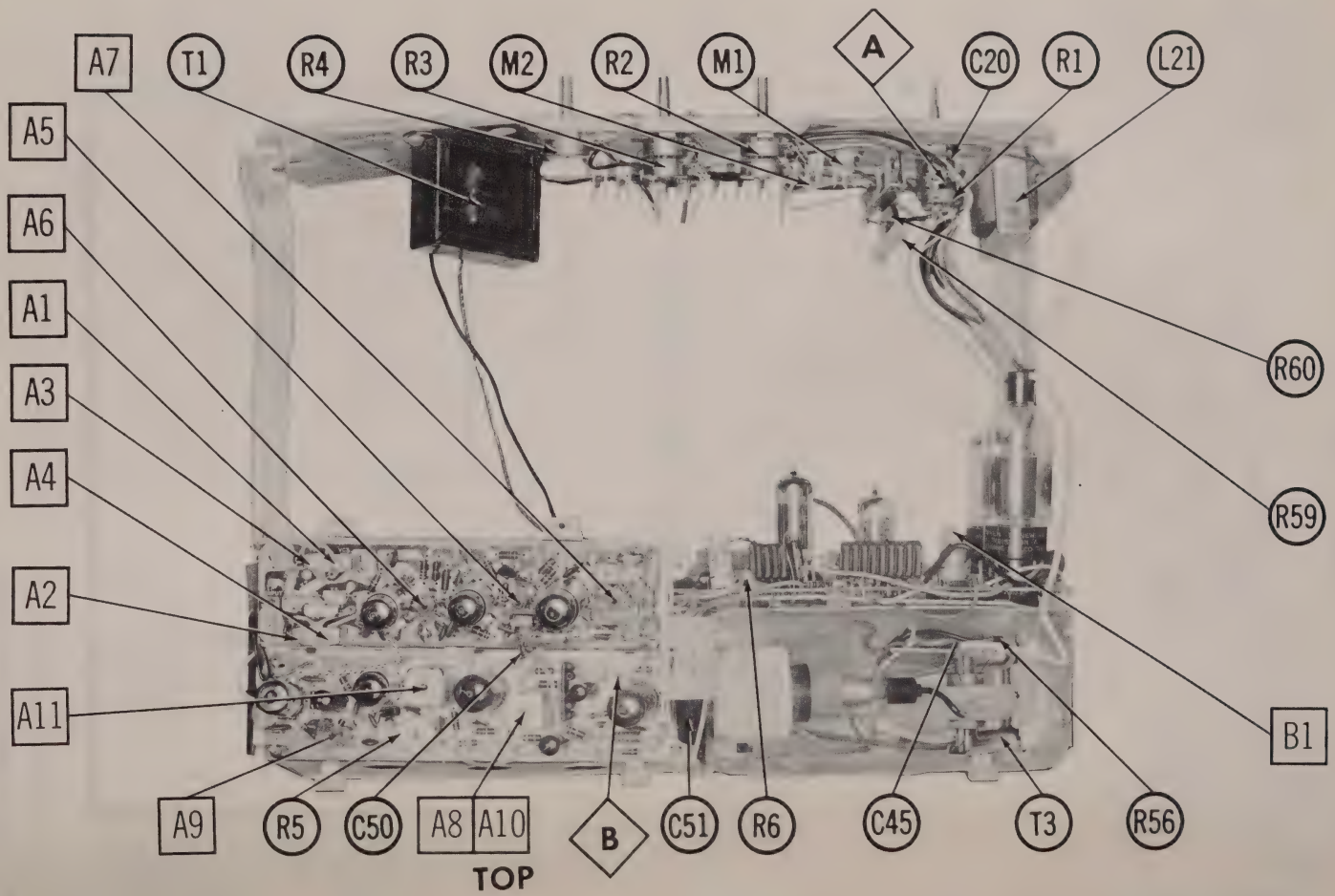
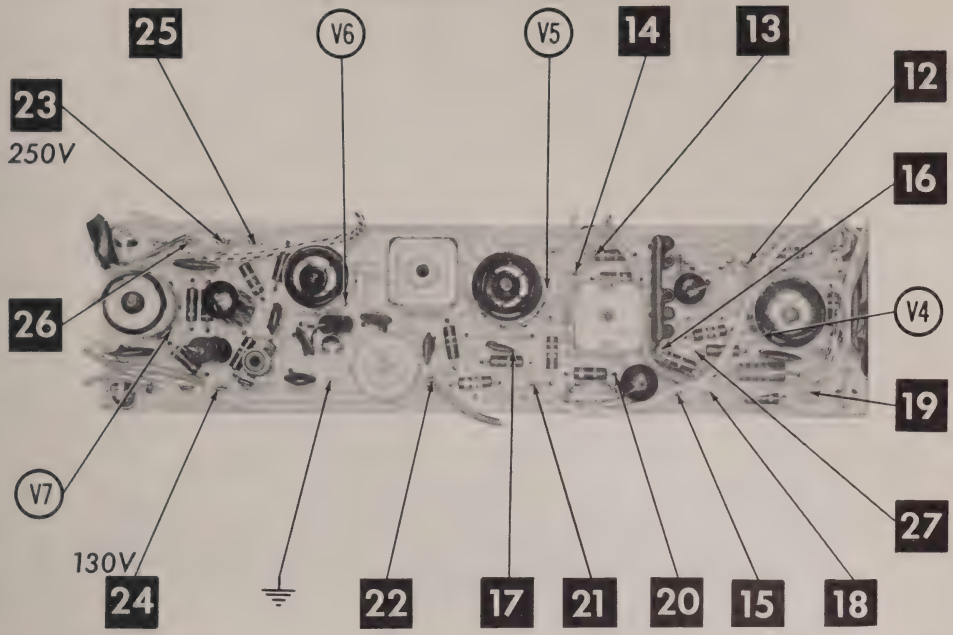
UHF TUNER T-28F



CHASSIS - REAR VIEW

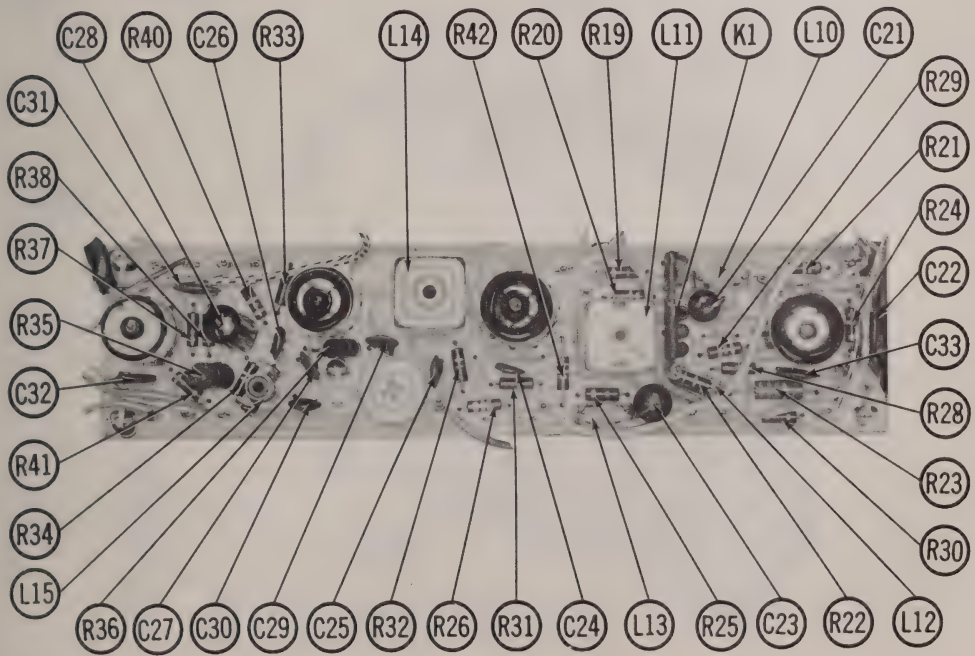
CircuiTrace Numbers 12 thru 27



A Howard W. Sams CIRCUITRACE Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VIDEO OUTPUT, SOUND, SYNC PRINTED BOARD

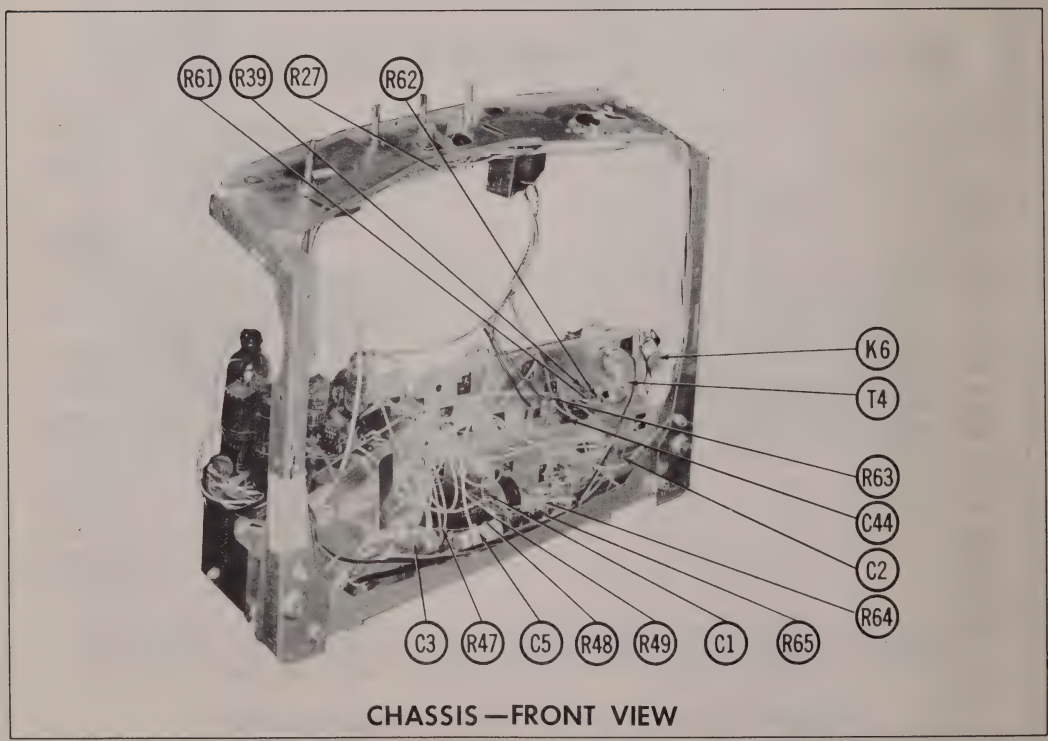


VIDEO OUTPUT, SOUND, SYNC PRINTED BOARD

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	4BZ6	• 1meg	47Ω	19Ω	19.5Ω	▪ 660Ω	▪ 660Ω	0Ω		
V2	4BZ6	• 1meg	68Ω	19.5Ω	20Ω	▪ 660Ω	▪ 660Ω	0Ω		
V3	6AM8A	220Ω	.1Ω	▪ 990Ω	20Ω	21.5Ω	▪ 990Ω	.2Ω	3300Ω	0Ω
V4	8AW8A	5100Ω	1.9meg	† 24K	11Ω	14Ω	68Ω	680K	▪ 0Ω	† 5700Ω
V5	6CG8A	1.6meg	† 50K	0Ω	14Ω	15.5Ω	▪ 15K	▪ 15K	0Ω	220K
V6	4CS6	2Ω	• 330Ω	15.5Ω	16Ω	† 380K	▪ 6800Ω	5Ω		
V7	12ED5	¶	500K	16Ω	19Ω	500K	† 220Ω	† 530Ω		
V8	13DR7	† 400Ω	2.3meg	2.3meg	11Ω	8Ω	•† 3meg	68K	• 60K	• 700Ω
V9	9AU7	† 16K	2meg	1200Ω	6Ω	6Ω	† 45K	• 100K	1200Ω	8Ω
V10	17DQ6/ 17DQ6A	NC	23Ω	NC	† 22K	750K	NC	27Ω	0Ω	TOP CAP † 13Ω
V11	17D4	NC	NC	¶ 200K	NC	† 1.3Ω	NC	23Ω	21.5Ω	
V12	1B3GT/ 1G3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP † 250Ω
V13	17DRP4	6Ω	†• 2.8meg	9Ω	† 120K	NC	†• 2.8meg	• 210K	2Ω	
V201	3CY5	1.5meg	0Ω	2Ω	1.5Ω	▪ 1100Ω	18K	0Ω		
V202	6BR8A	15K	▪ 4800Ω	0Ω	0Ω	1.5Ω	▪ 1900Ω	▪ 12K	0Ω	100K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 265 V. SOURCE.
▪ MEASURED FROM 130V SOURCE.
† MEASURED FROM PIN 3 OF V11.
NC NO CONNECTION



CHASSIS—FRONT VIEW

PHOTOFACT® Folder

**PRODUCTION CHANGE
BULLETIN 237**

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 2 IN SET 421

Motorola Models Y21P1B, Y21P1BR, Y21P1GY, 21P1B, 21P1BR, 21P1GY (Ch. PTS-546, PTS-546Y) were covered in PHOTOFACT Folder 2 - Set 421.

Models 21P1BD, 21P1BRD, 21P1GYD (Ch. PTS-546) are added along with late production changes with the publication of this bulletin.

TO IMPROVE STABILITY OF L3

C7 (56mmf capacitor) and C8 (10mmf capacitor) should be transposed. C7 should be across L3.

C8 is decreased from 10mmf to 5.6mmf.

COMPONENTS ADDED

A parallel combination of a .005 capacitor and a 68K resistor is inserted between pin 2 of V4 (12BY7A) and the junction of L12 and R23.

On some chassis the .005 capacitor and the 68K resistor may be a res-cap combination (Part #51C744975).

HIGH VOLTAGE CIRCUIT CHANGES

T3 (High Voltage Transformer) is changed, the new type transformer has the secondary coils wound on the primary coils in an inseparable assembly (Part #24D750252).

A partial schematic diagram showing the new transformer circuit is given in this bulletin.

C74 is decreased from .05 to .04mfd.

C79 is omitted.

K2 is omitted.

R78 (a 12Ω 1 watt resistor) is changed to a 12Ω 2 watt resistor.

R93 is omitted.

A 100mmf @ 6000 volt capacitor is added between pins 3 and 5 of V13 (19AU4GT).

A 12Ω 1 watt resistor is added from pin 3 of V12 (21EX6) to ground.

An 8200Ω ½ watt resistor is added between pins 3 and 5 of the yoke socket.

TO INCREASE HORIZONTAL SIZE

A 100mmf @ 6000 volt capacitor is added between pins 3 and 6 of the yoke socket.

RELIABILITY CHANGES

L11 changed to part #24K749671.

L13 changed to part #24K749674.

L15 changed to part #24K749672.

L16 changed to part #24K749673.

L17 changed to part #24K749668.

MOTOROLA MODELS 21P1BD, 21P1BRD, 21P1GYD (CH. PTS-546)

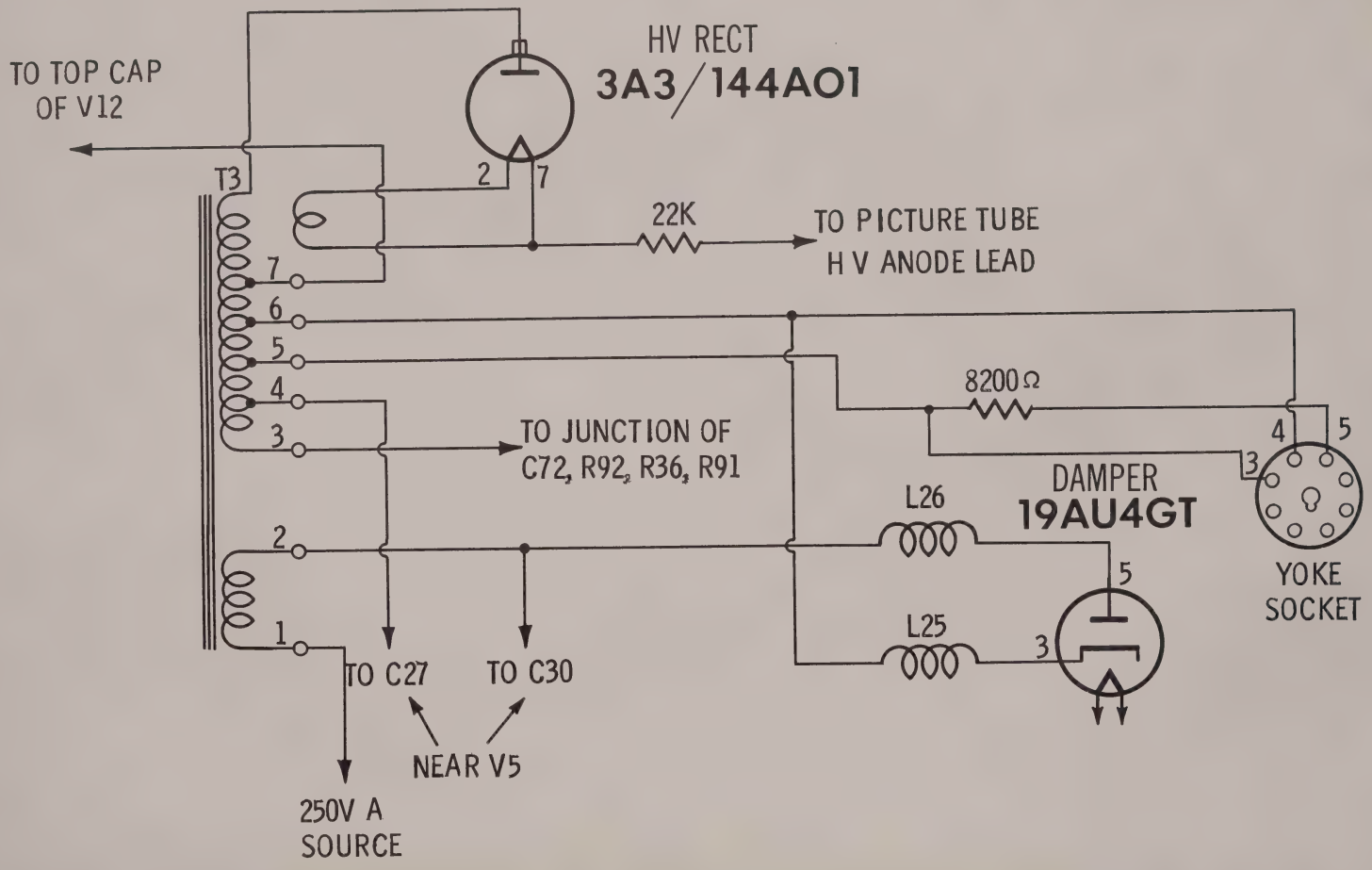
PRODUCTION CHANGE
BULLETIN 237

PRODUCTION CHANGE
BULLETIN 237

SET 484 FOLDER 3

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1960 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 1 IN SET 427

Admiral Chassis 18A6C, CB, T, TB, 18B6C. CB, T, TB, 18C6C, T, 18UA6C, CB, T, TB, 18UB6C, CB, T, TB, 8R1 were covered in PHOTOFACT Folder 1 - Set 427.

Chassis 18D6C, 18D6T are added along with late production changes with the publication of this bulletin.

POWER TRANSFORMER CENTER TAP CHANGED

Some chassis may have the high voltage center tap of T1 (Power Transformer) connected directly to pin 1 of the yoke socket.

IF TRANSFORMER CHANGE

IF Transformers (L4 and L6) in later sets have longer coil forms; therefore they have a different part no. (#72C132-39). The early and later IF transformers are directly interchangeable.

TO IMPROVE VERTICAL CIRCUIT

Resistors R70, R71, R72 and capacitors C53, C54, C55 were replaced by a res-cap couplate (Part #63C6-19).

Electrolytic Capacitor C4B is omitted.

R80 is omitted. With this change R79 connects directly to the 260V (A) source.

V9 (Vertical Output Tube) was changed from a type 6DB5 to a type 6EM5.

TO IMPROVE SUPER RANGE FINDER CIRCUIT

R40 is increased from 390K to 680K.

R4 (Super Range Finder Control) is increased from 100K (Part #75D20-116) to 5 meg (Part #75D20-119).

ALTERNATE RECTIFIER TUBES

Some chassis may use two rectifier tube sockets wired in parallel. Some may use a type 5V3 tube, with the other socket not being used; or as an alternate they may use one type 5U5GB, one type 5Y3GT. For these sets the manufacturer recommends using only the rectifier tubes mentioned above.

ADMIRAL CHASSIS 18D6C, 18D6T

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 1 IN SET 431

Admiral Chassis 20B6C. CB, T, TB, 20C6C, 20E6C, 20UB6C, CB, T, TB, 4C4, 8R1 were covered in PHOTOFACT Folder 1 - Set 431.

The following is a list of changes made during later production.

COMPONENT CHANGES

R65 is increased from $\frac{1}{2}$ watt to 2 watt.

A .01 @ 1400 volt capacitor is added from the AC line to chassis ground.

R47 is increased from 1 watt to 3 watt.

TO IMPROVE VERTICAL STABILITY

Capacitors C60, C61, C62 and resistors R81, R82, R83 are replaced with a res-cap couplate (Part #63C6-19). The couplate contains the same components.

V10 (Vertical Output Tube) changed from a type 6DB5 to a type 6EM5.

R89 is omitted.

C5B (Electrolytic Capacitor) is omitted. With these changes R88 connects directly to the 265 volt source.

TO IMPROVE SUPER RANGE FINDER CIRCUIT

R5 (Super Range Finder Control) is increased to 5 meg (Part #75D20-119).

R69 increased from 390K to 680K.

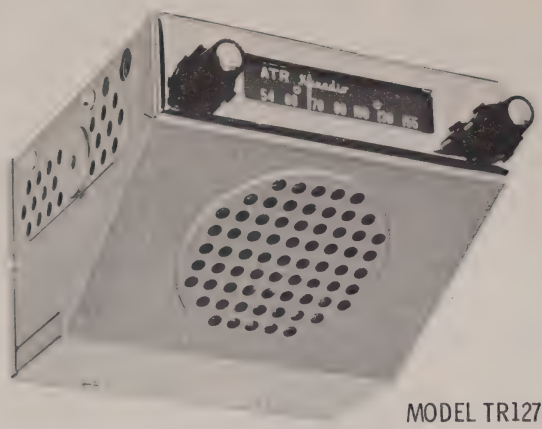
R70 is omitted.

ADMIRAL CHASSIS 20B6C, CB, T, TB, 20C6C, 20E6C, 20UB6C, CB, T, TB, 4C4, 8R1

PHOTOFACT® Folder

ATR MODELS TR1279-6V, TR1279-12V, 1279-6V, 1279-12V

ATR MODELS TR1279-6V, TR1279-12V, 1279-6V, 1279-12V



MODEL TR1279-12V

ATR MODELS TR1279-6V, TR1279-12V, 1279-6V, 1279-12V

TRADE NAME	ATR Models TR1279-6V, 1279-6V (6 volt Operation); TR1279-12V, 1279-12V (12 Volt Versions)
MANUFACTURER	American Television & Radio Co., 300 E. Fourth Street, St. Paul 1, Minn.
TYPE SET	Battery Operated 6 Tube Universal Type AM Automobile Receiver
POWER SUPPLY	Storage Battery — RATING 3 Amp. @12.6 Volts DC (12 Volt Versions); 6 Amp. @6.3 Volts DC (6 Volt Versions)
TUNING RANGE—BROADCAST	535 – 1610KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

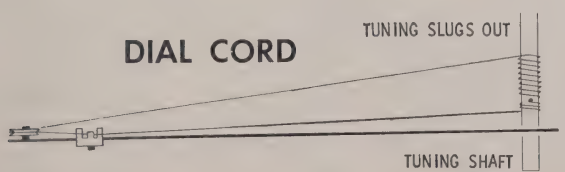
Suggested alignment tools:

A1 thru A4..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

A5, A6, A7..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

A8, A9..... GENERAL CEMENT #8271, 8279, 8897, 9050-L, 9150
WALSCO #2521, 2524

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru 100mmf to pin 7 (grid) of Converter. Low side to chassis.	455KC (400∿ Mod.)	High Freq. end Stop.	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Antenna receptacle thru dummy (Fig. 1).	1610KC	"	"	A5, A6, A7	"
3.	"	1400KC	Tune to 1400KC Signal.	"	A8, A9	"
4.	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum output.					



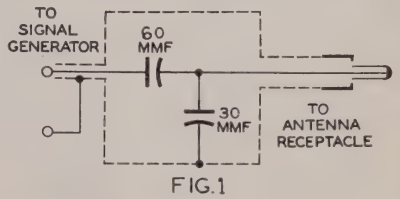


FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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JD666

SET 484 FOLDER 4

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆)
V1	RF Amplifier	12BA6 (6BA6) *
V2	Converter	12BE6 (6BE6) *
V3	IF Amplifier	12BA6 (6BA6) *
V4	AVC-Detector-AF Amp.	12AV6 (6AV6) *
V5	Output	12AQ5 (6AQ5) *
V6	Rectifier	12X4 (6X4) *

* Used in 6 volt versions.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ATR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■15	350		AFH3-104	CO770	FP328	TMT-89	TVL-3620	
B	▲10	350							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	100		1469-0001	TCZ-100	22R5T1	CM-19B-101M	MCB235	MS-310
C3	.0068 200V		P288N-0068	DD-682	CUB6D68	6DP-1-682	GEM-6268	6TM-D68
C4	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C5	160max.	#DP521033				583		
C6	100max.	#DP521021				423		
C7	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C8	4.7		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C9	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C10	580max.	#T52700				467		
C11	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP220	5HK-D20
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C13	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S1
C14	.015 1000V	Note 1	P1088N-015	DD-153	CUB10S15	16DP-4-153	GEM-10115	10TM-S15
C15	.5 100V	Note 2	P288N-5		CUB2P5	2DP-5-504	GEM-205	2TM-P5
C16	.5 100V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2TM-P5
C17	.5 100V		P288N-5		CUB2P5	2DP-5-504	GEM-205	2TM-P5

ATR Part Number.
Note 1. 6V Versions use .033mfd - 1000V in this application.
Note 2. Not used in 6V versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ATR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	VRT-1290-2	F1-40			■ UE4099-S	Tone
B	500K	½		R2-46				Volume
	250K Tap							
C	Switch			KR-4				Power Off-On

■ "STA-LOC" equivalent: FA55L, RU55T254, OS750A, IS1187, US41.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

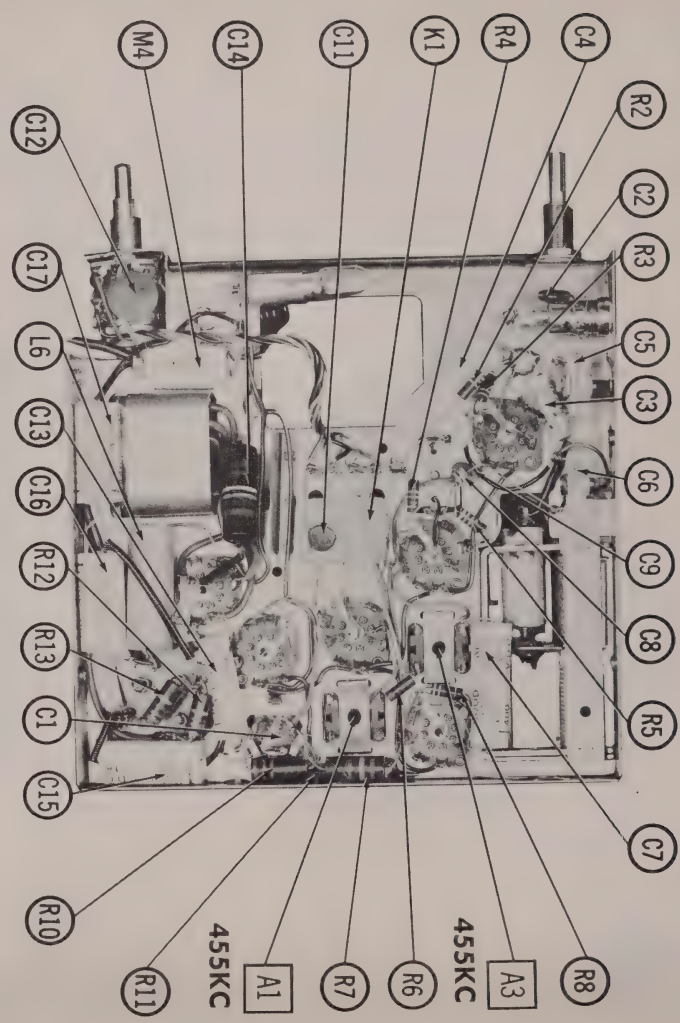
ITEM No.	RATING	REMARKS
R2	470K	
R3	470Ω	
R4	82K	
R5	47K	

ITEM No.	RATING	REMARKS
R6	1meg	
R7	6800Ω 2W	
R8	470Ω	
R9	22K	

ITEM No.	RATING	REMARKS
R10	2200Ω 2W	
R11	330Ω 1W	
R12	220Ω 1W	(68Ω) *
R13	220Ω 1W	(68Ω) *

* Used in 6 volt versions.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ATR PART No.	REPLACEMENT DATA
K1	Audio Coupling	220mmf, 250mmf, 2000mmf, 5000mmf, 470K, 470K, 6.8meg		Aerovox PA-113-1 Centralab PC-150 Cornell-Dubilier 116TM1 Mallory MS-106 Sprague DT-1

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		ATR PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Ant. Coil	ALO1277						
L2	RF Coil							
L3	Osc. Coil							
L4	1st IF Trans.		16-6756	16-6758	BC-352	12-C1	RF-1	
L5	2nd IF Trans.		16-6758	16-6758	BC-353	12-C2	RF-2	
L6	Hash Choke		19-4214	19-4214		5218		3.1uh
L7	"A" Lead Hash Choke							1.2uh

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	ATR PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12 VCT @ 1.6A	540 VCT @ .040A		①						

① Part #PT1277 used for 6 volt models.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ATR PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5000Ω	3-4Ω	21AC53A	24S51	A-2930	AU-601	A-3877	24S51	S-3X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ATR PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	*	4A1	* Includes T2

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				ATR PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interruptor	12	115v	ATR1840①	6330	G1602	6330	Model TR1279-12V
	"	6	115v	ATR1400②	5715	1501	5715	Model TR1279-6V

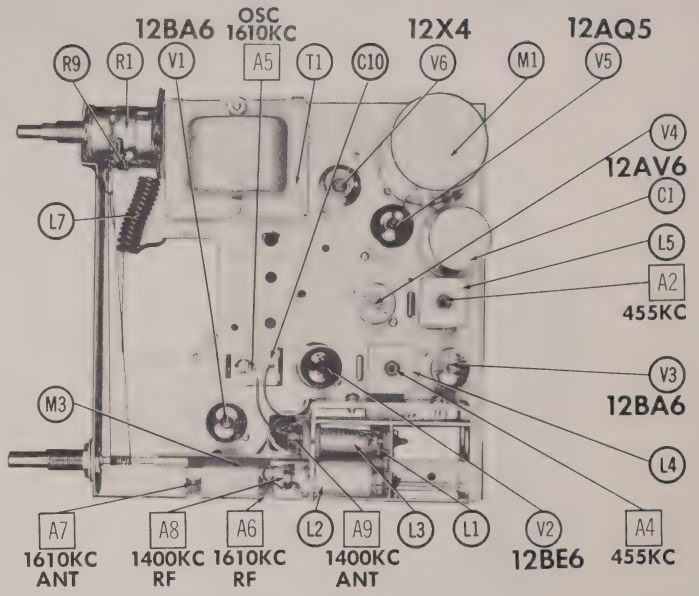
① Part # ATR 1840K used in Model 1279-12V
② Part #ATR 1400K used in Model 1279-6V.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ATR PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	6A 32V	①	H-81644-8	307006 (SFE 6A 32V)	155009	SFE 7½	HHH

① 6 Volt versions use 10A fuse.

CHASSIS—TOP VIEW



MISCELLANEOUS

ITEM No.	PART NAME	ATR PART No.	NOTES
M3	Tuner		Manual (Complete)
M4	Spark Plate		

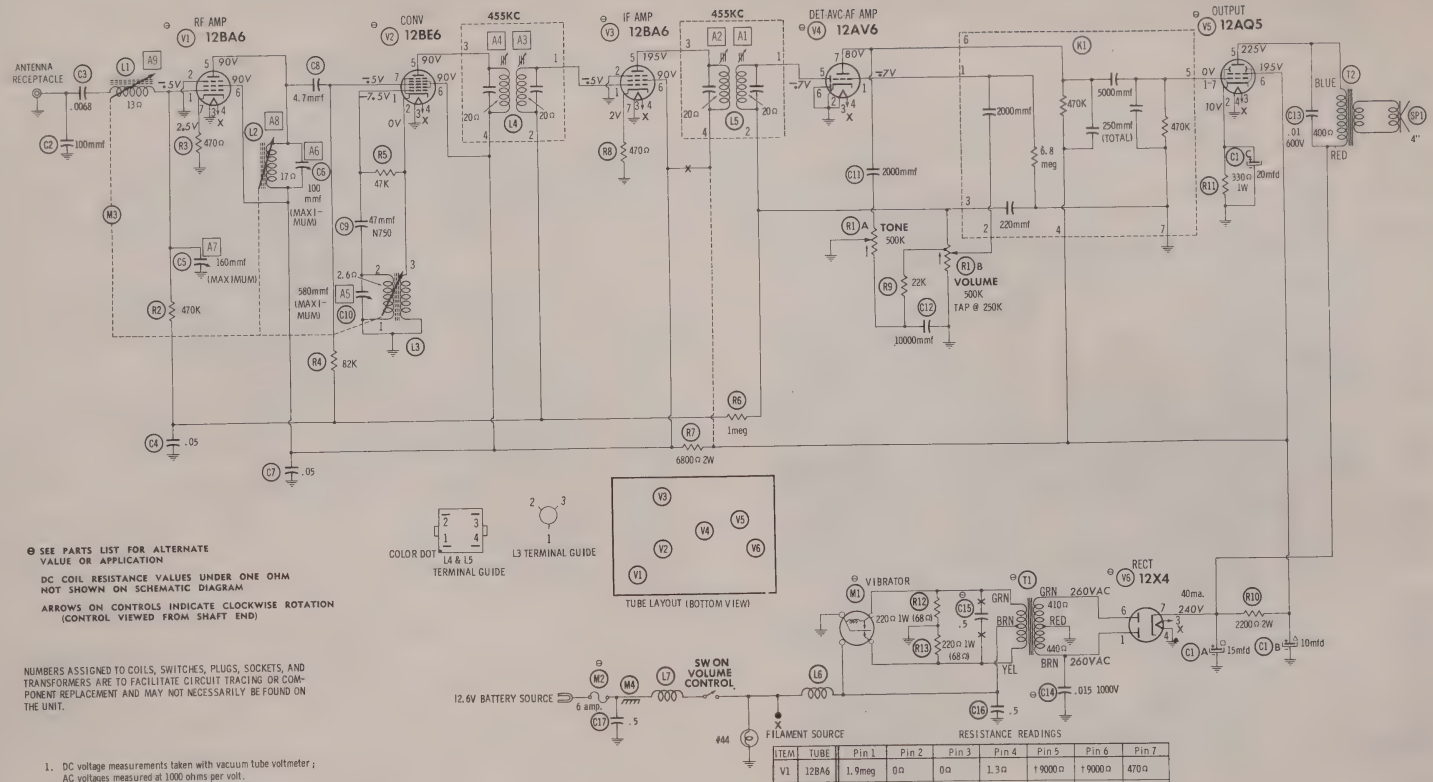
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	WK-3	Tuning, Volume
Dial Pointer	C-521168	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Bonding Strap	Use BELDEN No. 8661



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BA6	1.9meg	0Ω	0Ω	1.3Ω	†9000Ω	†9000Ω	470Ω
V2	12BE6	47K	.6Ω	0Ω	1.3Ω	†9000Ω	†9000Ω	1.5meg
V3	12BA6	1.5meg	0Ω	0Ω	1.3Ω	†9000Ω	†9000Ω	470Ω
V4	12AV6	6.8meg	0Ω	0Ω	1.3Ω	450K	0Ω	†470K
V5	12AQ5	470K	330Ω	1.3Ω	0Ω	†400Ω	†2200Ω	470K
V6	12X4	440Ω	NC	1.3Ω	0Ω	NC	410Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V6.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ATR MODELS TR1279-6V, TR1279-12V, 1279-6V, 1279-12V

PHOTOFACT® Folder

AUTOMATIC MODELS
CU-39, UN-40

AUTOMATIC MODELS
CU-39, UN-40

MODEL UN-40

AUTOMATIC MODELS
CU-39, UN-40

TRADE NAME	Automatic Models CU-39 (Positive Ground), UN-40 (Negative Ground)
MANUFACTURER	Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston 15, Mass.
TYPE SET	Battery Operated 4 Tube Universal Type AM Automobile Receiver With Transistorized Output
POWER SUPPLY	12 Volt Storage Battery RATING 1.6 Amp. @12.6 Volts DC
TUNING RANGE	538 - 1610KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools: A1 thru A4..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6, A7.... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	265KC (400∿ Mod.)	High end stop .	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	1610KC	"	"	A5	"
3.	Antenna receptacle thru dummy (Fig. 1).	"	"	"	A6, A7	"
4.	With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and adjust A7 for maximum output.					

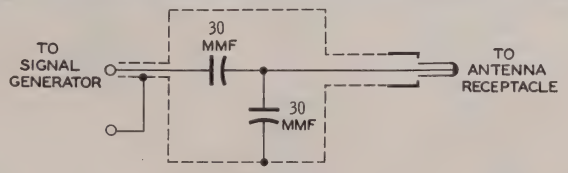

FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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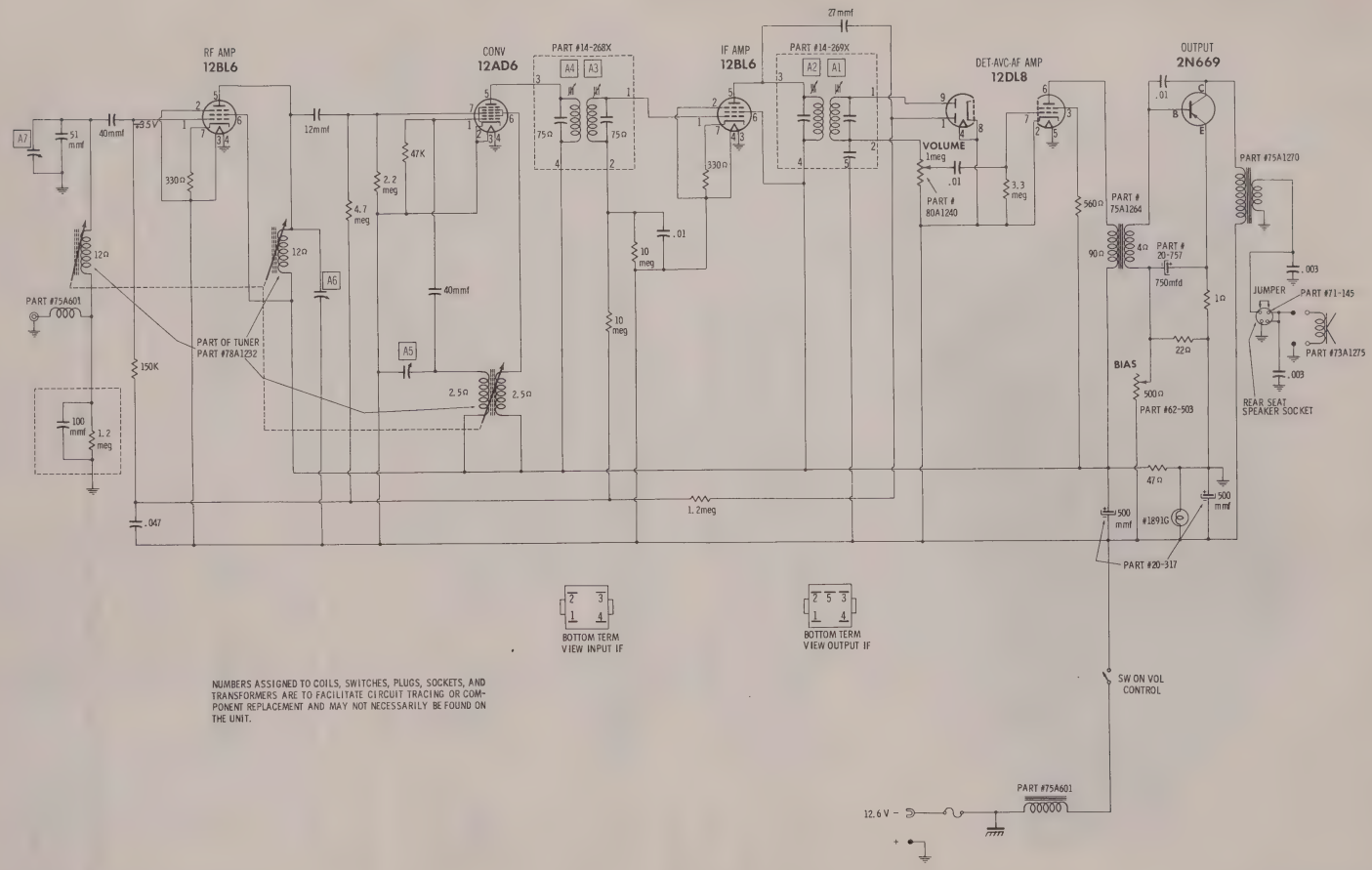
JD676

SET 484 FOLDER 5



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

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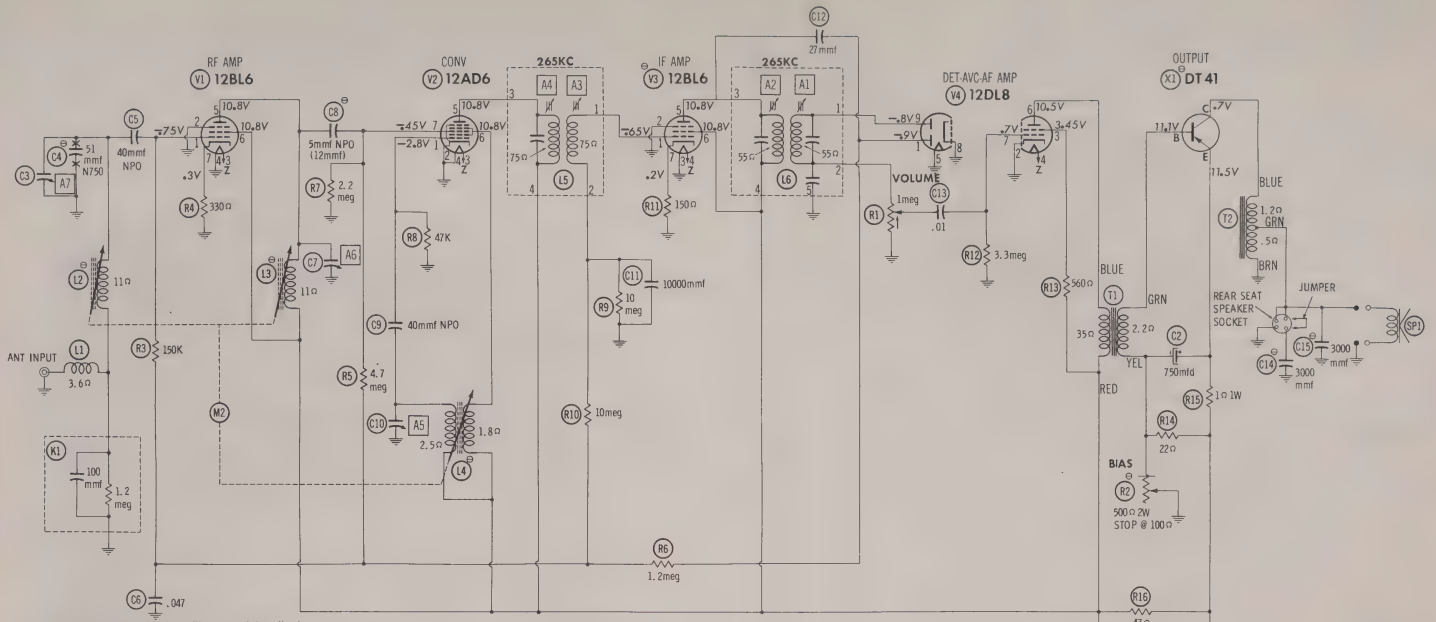
AUTOMATIC MODELS
CU-39, UN-40

MODEL CU-39 (POSITIVE GROUND)



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TRANSISTOR TERM VIEW

BOTTOM TERM VIEW L5

BOTTOM TERM VIEW L6

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BL6	6.2meg	0Ω	1.6Ω	0Ω	†55Ω	†47Ω	330Ω		
V2	12AD6	47K	0Ω	1.6Ω	0Ω	†120Ω	†47Ω	2.2meg		
V3	12BL6	7.5meg	0Ω	0Ω	1.6Ω	†100Ω	†47Ω	150Ω		
V4	12DL6	7.5meg	0Ω	†600Ω	1.6Ω	0Ω	†82Ω	3.3meg	0Ω	1meg

† MEASURED FROM JUNCTION OF R15, R16 AND C1A. TRANSISTOR CIRCUIT RESISTANCE NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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AUTOMATIC MODELS CU-39, UN-40

MODEL UN-40 (NEGATIVE GROUND)

PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12BL6	V3	IF Amplifier	12BL6 (12AF6) *
V2	Converter	12AD6	V4	Detector-AVC-AF Amp.	12DL8

* Alternate

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	DT-41 *	Output	DT-41			2N242	PNP

* Some versions may use type 4347.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	AUTOMATIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■500	15	20-317	AFH3-00-95		WP200.6		TVLS-2157*	
B	▲500	15							
C2	750	3	20-757	SRE3V500	BR1000-6	PETA190	TD-1000-6	TVAS-1097 *	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3		#28-800-2						
C4	51 N750	Note 1	N750-DI 47	TCN-51	C10Q51U	CCTN-470	CN7-447	10TCU-Q47
C5	40 NPO			TCZ-39	C10Q39C	CCTO-390	CNO-439	10TCC-Q39
C6	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C7		#28-400-2						
C8	5 NPO	(12) †	NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C9	40 NPO		NPO-DI 39	TCZ-39	C10Q39C	CCTO-390	CNO-439	10TCC-Q39
C10		#28-461						
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C12	27		DI-27	TCZ-27	C10Q27C	CCTO-270	GP427	10TCC-Q27
C13	.01 200		P288N-01	D6-103	CUB2S1	4DP-1-103	GEM-411	2TM-S1
C14	3000	Note 2	DI-3000	DD-302	BYA10D3	CCD-302	GP230	5HK-D30
C15	3000	Note 2	DI-3000	DD-302	BYA10D3	CCD-302	GP230	5HK-D30

\# Automatic Part Number
Note 1. Not used in some versions.
Note 2. C14 and C15 may be a dual unit in some versions (Part #15-2X302).
† Alternate Value.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AUTOMATIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg	½	80A1240					Volume
B	Switch							Power Off-On
R2	500Ω *	2(WW)	62-501①		39-500-100	112-500-100	FL-600S	Bias

① Part #62-503 used in Model CU-39.
* Stop at 100Ω.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	150K	
R4	330Ω	
R5	4.7meg	
R6	1.2meg	
R7	2.2meg	

ITEM No.	RATING	REMARKS
R8	47K	
R9	10meg	
R10	10meg	
R11	150Ω	
R12	3.3meg	

ITEM No.	RATING	REMARKS
R13	560Ω	
R14	22Ω	
R15	1Ω 1W	
R16	47Ω	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AUTOMATIC PART No.	REPLACEMENT DATA
K1	Antenna Filter	100mmf, 1.2meg	89-4204	Sprague PRC-9

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		AUTOMATIC PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	RF Choke	75A601	19-1004	19-1004	BC-565	4610		①6.2uh
L2	Ant. Coil	†						
L3	RF Coil	†						
L4	Osc. Coil	†						
L5	1st IF Trans.	14-268X			BC-350	12-H1		
L6	2nd IF Trans.	14-269X				12-H6		

† Part of Tuner M2.
① IRC Part # CL-1.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	AUTOMATIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L7	1.6A	.5Ω	.0014 HY	75A1269						

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	AUTOMATIC PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	5.5	1	75A1264						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA							NOTES
	PRI.	AUTOMATIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	20Ω Tap ⓐ 3-4Ω	75A1270							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AUTOMATIC PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω	73A1275	5A07R	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			AUTOMATIC PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	SFE	7½A 32V			307007.5	155009	SFE 7½	HHH

MISCELLANEOUS

ITEM No.	PART NAME	AUTOMATIC PART No.	NOTES
M2	Tuner	78A1232	Manual (Complete)
M3	Spark Plate		

CABINETS & CABINET PARTS

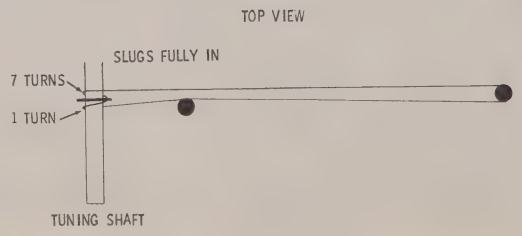
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

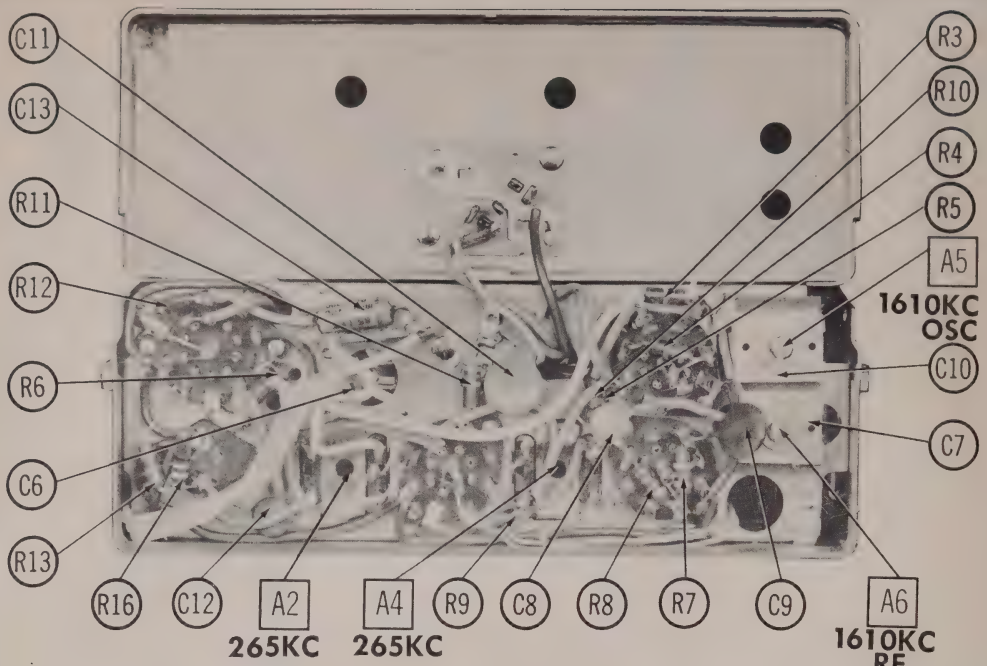
NAME	PART NO.	DESCRIPTION
Knob	47A1235	Tuning, Volume

WIRING DATA

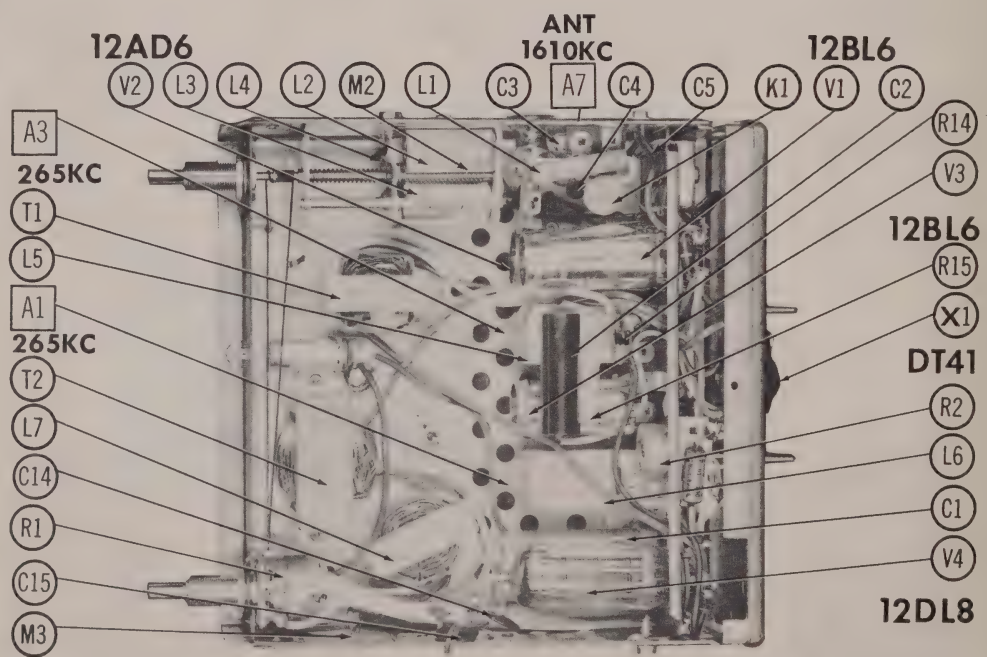
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

DIAL CORD STRINGING





CHASSIS-BOTTOM VIEW



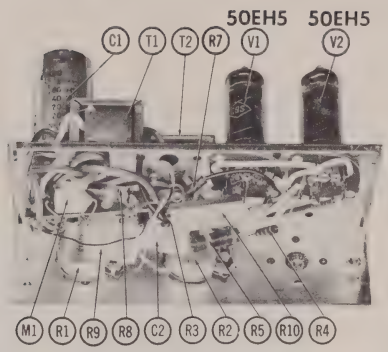
CHASSIS-TOP VIEW

PHOTOFACT® Folder

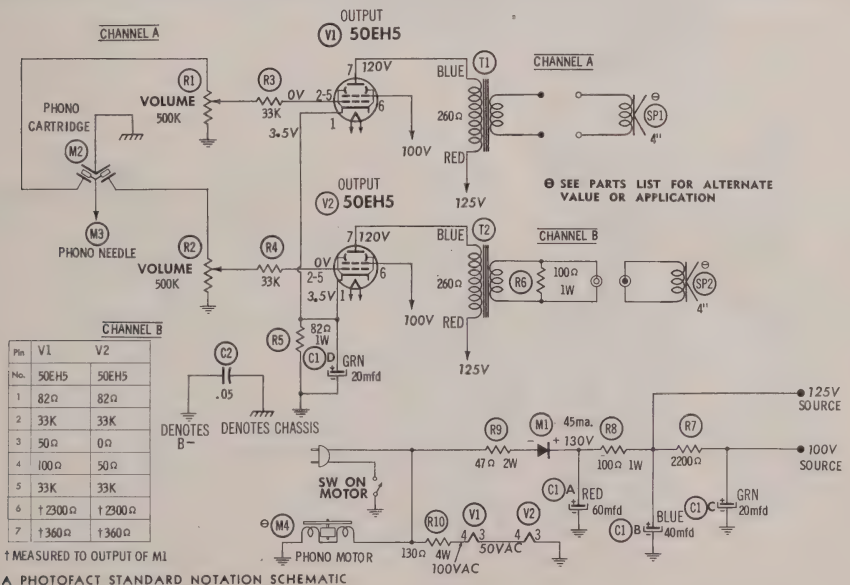
CAPITOL MODELS S-923, S-925

CAPITOL MODELS
S-923, S-925

MODEL S-923



TRADE NAME	Capitol Models S-923, S-925
MANUFACTURER	Capitol Records, Inc., 1 S. Webster Ave., Scranton 5, Pa.
TYPE SET	AC Operated 2 Tube Stereo Amplifier with 4 Speed Manual Record Player (Model S-925 is an Automatic Record Changer)
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 33 Watts, .34 Amp. @ 117 Volts AC



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SET 484 FOLDER 6

PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Channel A Output	50EH5	V2	Channel B Output	50EH5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA CAPITOL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	60	150	4716	AFH4-93-50	BBRT42215	TCT3119	TDLT-3	TVL-3443	
B	40	150			BR6015	TC45	TD-80-150	TVA-1410	
C	20	150							
D	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CAPITOL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	5068	B-60	A47-500K-Z	QI3-133	U48	Volume A
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	500K	½	5068	B-60	A47-500K-Z	QI3-133	U48	Volume B
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	33K	
R4	33K	
R5	82Ω 1W	

ITEM No.	RATING	REMARKS
R6	100Ω 1W	
R7	2200Ω	
R8	100Ω	

ITEM No.	RATING	REMARKS
R9	47Ω 2W	
R10	130Ω 4W	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA CAPITOL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3000Ω	3-4Ω	5220	24S53 ①	A-3025 ①	AU-605 ①	A-3332 ①	24S53 ①	S-12X ①	① Use original frame
T2	3000Ω	3-4Ω	5220	24S53 ①	A-3025 ①	AU-605 ①	A-3332 ①	24S53 ①	S-12X ①	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA CAPITOL PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	5241 ①	4A1	① Model S-923.
SP2	4"	PM	3-4Ω	5241 ①		② Model S-925, 2 used
	4" x 6"	PM		5246 ②		

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA CAPITOL PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.030A	4894 *	5E4 *	HA154 *	K200 *	SR200 *	* Silicon

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA CAPITOL PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE
M2	4597	76TB	N8-7 & N8-3	96T				8TA4-S	N-8TA-S

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA CAPITOL PART No.	REPLACEMENT DATA CLEVITE WALCO PART No.	REPLACEMENT DATA JENSEN PART No.	REMARKS
M3	4926 † (78RPM)		CRA-55 †	† Jewel ♦ Diamond
	4922 † (LP)		CRA-55X† or CRA-55XD ♦	

MISCELLANEOUS

ITEM No.	PART NAME	CAPITOL PART No.	NOTES
M4	Motor	5385	Includes Switch (Grey) Model S-923
	Motor	5386	Includes Switch (Brown) Model S-923
	Tone Arm	5408	Gray, Model S-923
	Tone Arm	5409	Brown, Model S-923

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	4763	Gray, Model S-923
Knob	4764	Mahogany, Model S-923
Knob	4859	Volume A, Model S-925
Knob	4860	Volume B, Model S-925
Knob	4858	Tone, Model S-925
Case	5621	Turquoise & White, Model S-923
Case	5622	Red & White, Model S-923
Case	5623	Turquoise & White, Model S-925
Case	5624	Red & White, Model S-925

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

CONTINENTAL MODEL SW-7

CONTINENTAL
MODEL SW-7

CONTINENTAL
MODEL SW-7

TRADE NAME	Continental Model SW-7		
IMPORTER	Continental Merchandise Co., Inc., 236 Fifth Ave., New York 1, N. Y.		
TYPE SET	Battery Operated Transistorized Portable 3-Band Receiver		
POWER SUPPLY	9 Volts DC	RATING	7MA@9 Volts DC (No Signal, Min. Volume) 12MA@9 Volts DC (Signal, Normal Volume)
TUNING RANGE—BROADCAST	535 - 1605KC	SHORT WAVE	1 3.5-6.8MC 2 6.6-12MC

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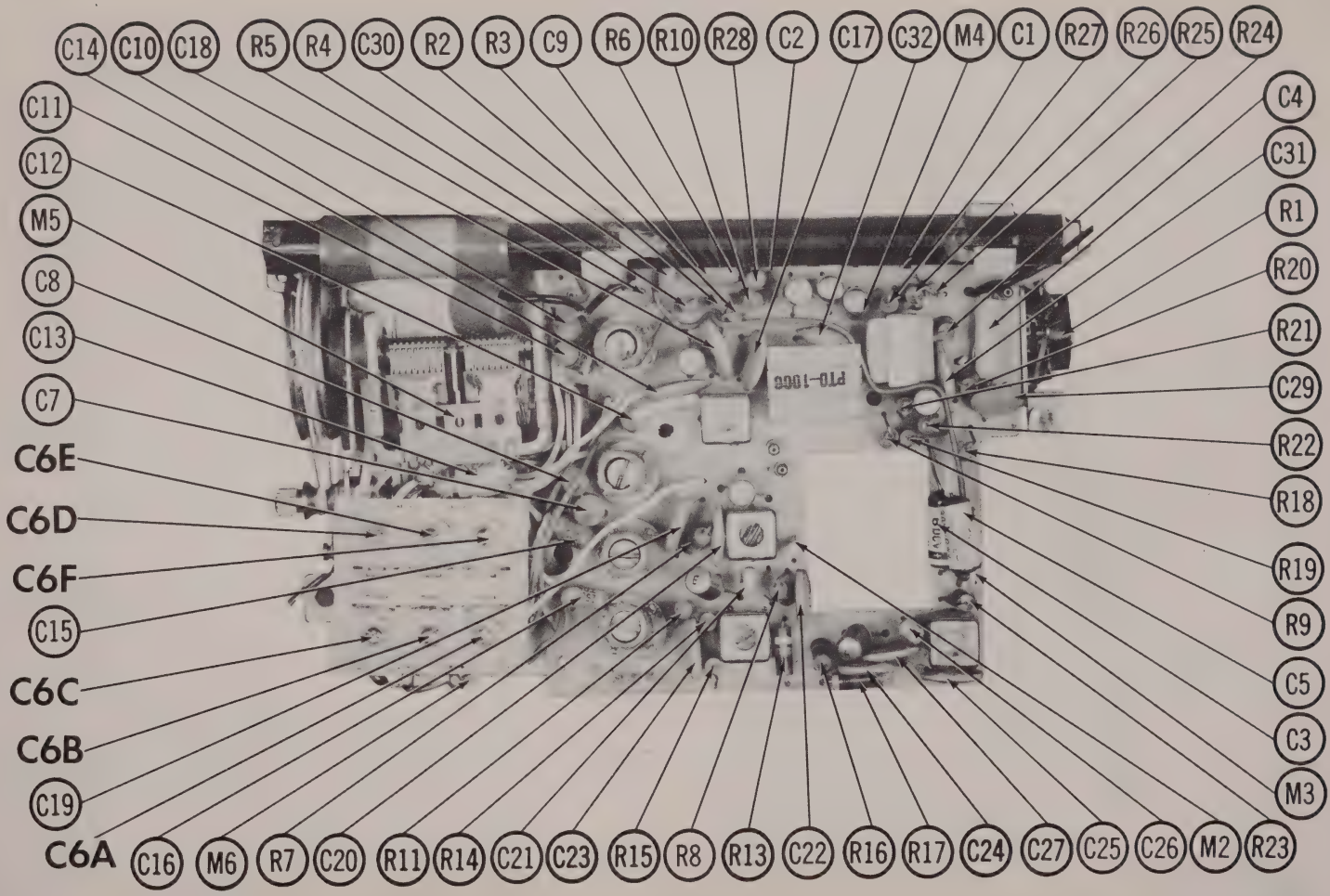
JF670

SET 484 FOLDER 7



CHASSIS TOP VIEW – CAPACITOR, RESISTOR & MISC. IDENT.

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	HJ-60	Mixer			2N486		PNP
X2	HJ-71	Oscillator			2N485		PNP
X3	2N218	1st IF Amplifier		2N218	2N111A	2N218	PNP
X4	2N218	2nd IF Amplifier		2N218	2N111A	2N218	PNP
X5	2N215	Driver		2N215	2N362		PNP
X6	2N217	Output		2N217	2N631	2N217	PNP } Matched
X7	2N217	Output		2N217	2N631	2N217	PNP } Pair

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Continental PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4	34.04					Volume & Switch

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	Continental PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	50	10		PWE10050	NLW50-10	TT10X50	ML50-15	TE-1119	
C2	30	10		PWE10030	EC30-15	TT15X30	ML30-15	TE-1158	
C3	30	6		PWE6030	EC30-6	TT6X30	ML30-6	TE-1092	
C4	3	10		XPP-10003	NLW3-25	TT12X3	ML4-15	TE-1122	
C5	30	6		PWE6030	EC30-6	TT6X30	ML30-6	TE-1092	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	4200Ω	
R3	15K	
R4	2000Ω	
R5	4200Ω	
R6	50K	
R7	2000Ω	
R8	7500Ω	
R9	82K	
R10	300Ω	
R11	1000Ω	

ITEM No.	RATING	REMARKS
R12	100K	
R13	1000Ω	
R14	4200Ω	
R15	82K	
R16	600Ω	
R17	500Ω	
R18	1000Ω	
R19	6000Ω	
R20	27K	
R21	4200Ω	

ITEM No.	RATING	REMARKS
R22	1000Ω	
R23	50Ω	
R24	10K	
R25	180Ω	
R26	3000Ω	
R27	9000Ω	
R28	10Ω	
R29	7000Ω	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6A								
B								
C								
D								
E								
F								
C7	600			D6-601	L10T6	CCS-621	GP360	10TS-T60
C8	200		SI 200	P6-201	L10T2	CCD-201	GP320	10TS-T20
C9	40000			DD-403			GP140	5HK-S40
C10	600			DD-601	L10T6	CCS-621	GP360	10TS-T60
C11	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C12	500		SI 500	D6-501	BYA10T5	CCD-501	GP350	10TS-T50
C13	1000		SI 1000	D6-102	BYA10D1	CCD-102	GP210	5HK-D10
C14	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C15	500		SI 500	D6-501	BYA10T5	CCD-501	GP350	10TS-T50
C16	250		SI 250	D6-251	L10T25	CCD-251	GP320	10TS-T25
C17	40000			DD-403			GP140	5HK-S40
C18	40000			DD-403			GP140	5HK-S40
C19	40000			DD-403			GP140	5HK-S40
C20	40000			DD-403	C10V6C		GP140	5HK-S40
C21	6							
C22	40000			DD-403			GP140	5HK-S40
C23	40000			DD-403			GP140	5HK-S40
C24	40000			DD-403			GP140	5HK-S40
C25	40000			DD-403			GP140	5HK-S40
C26	3		NPO-SI 3.0	TCZ-3R3	C10V3C	CCTO-3R3	CNO-3R3	10TCC-V33
C27	40000			DD-403			GP140	5HK-S40
C28	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C30	40000			DD-403			GP140	5HK-S40
C31	40000			DD-403			GP140	5HK-S40
C32	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		Continental PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	SW 2 Ant. Coil							
L2	SW 1 Ant. Coil							
L3	BC Loopstick							
L4	SW 2 Osc. Coil							
L5	SW 1 Osc. Coil							
L6	BC Osc. Coil							
L7	1st IF Trans.							
L8	2nd IF Trans.							
L9	3rd IF Trans.							

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Continental PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	5	1	PTA-1408	TR-48			TR-48		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Continental PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	390Ω	6-8Ω	PTO-1000	TR-19				TR-19		

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Continental PART No.	QUAM PART No.	
SP1	2½"	PM	6-8Ω			

BATTERIES

ITEM No.	VOLTAGE	Continental	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
		PART No.	"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V 9V ♦	* ♦		Z * 2U6 ♦		1015 * 216 ♦		M15R * M1604 ♦	* 6 Required ♦ Used in some versions.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		Continental PART No.	CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N34A		1N34A	1N34A	1N34A	Overload (Pigtail)
M3	1N34A		1N34A	1N34A	1N34A	Detector (Pigtail)
M4	H15 *					Output Bias (Pigtail)

* Transistor with one lead removed.

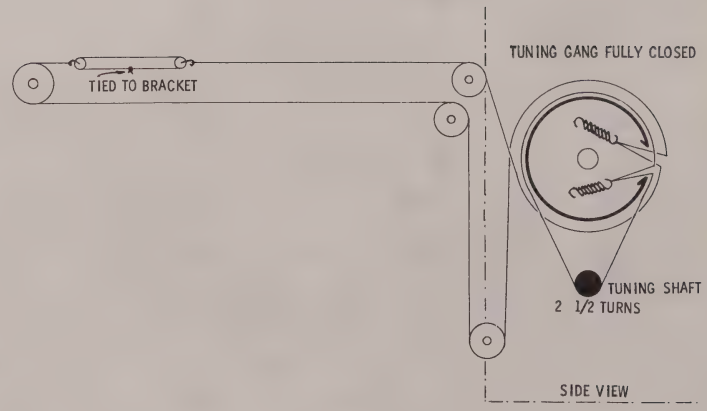
MISCELLANEOUS

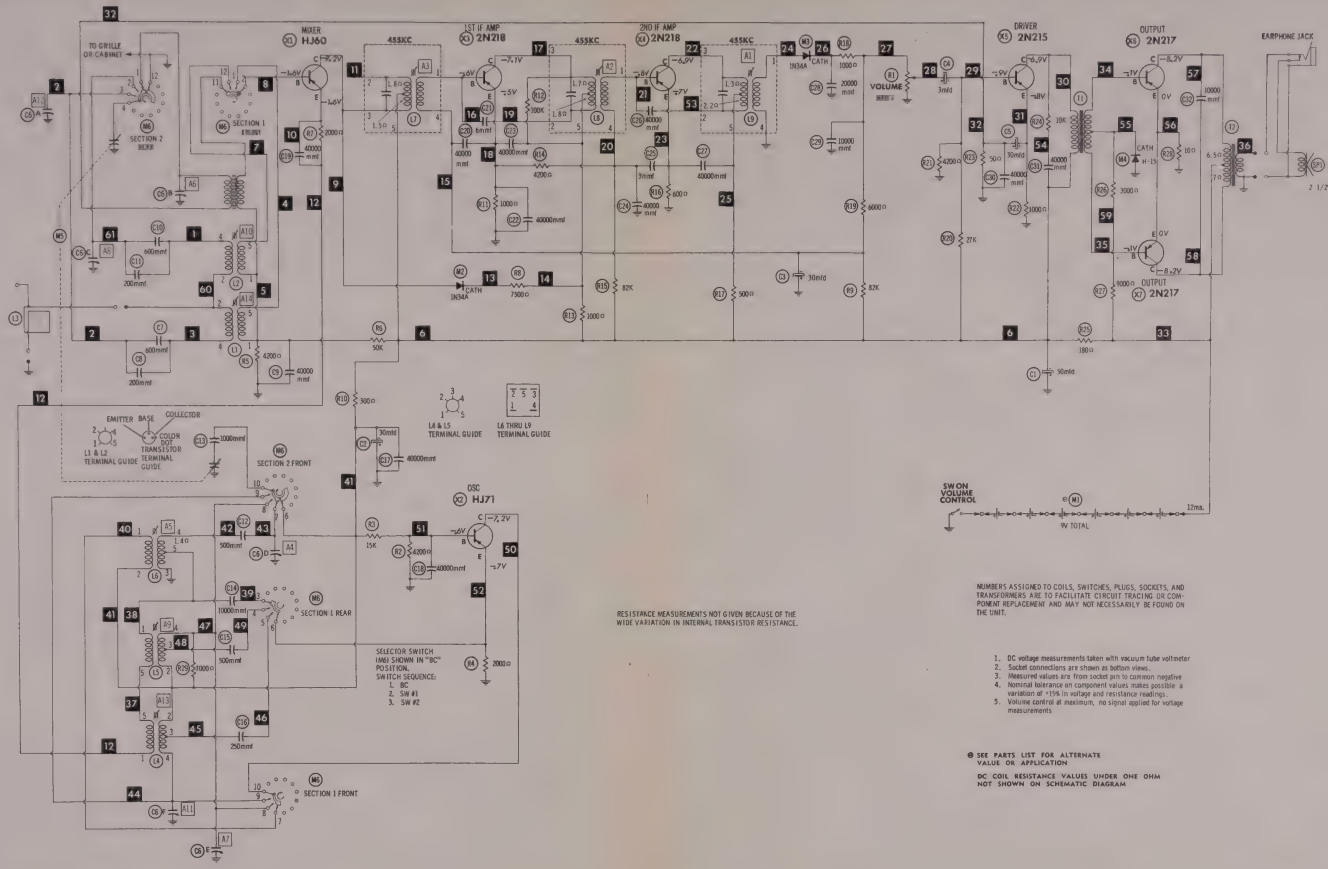
ITEM No.	PART NAME	Continental PART No.	NOTES
M5	Tuning Cap.		2 Gang
M6	Switch		Function

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

DIAL CORD STRINGING




MIXER HJ60
1ST IF AMP 2N218
2ND IF AMP 2N218
DRIVER 2N215
OUTPUT 2N217
OUTPUT 2N217
OSC HJ71
455KC
455KC
455KC
VOLUME
EARPHONE JACK
TO GRILLE OR CABINET
SECTION 1 FRONT
SECTION 1 REAR
SECTION 2 FRONT
SECTION 2 REAR
EMITTER BASE COLLECTOR
COLOR DOT TRANSISTOR TERMINAL GUIDE
L1 & L2 TERMINAL GUIDE
L4 & L5 TERMINAL GUIDE
L6 THRU L9 TERMINAL GUIDE
SW ON VOLUME CONTROL
9V TOTAL
12ma.
SELECTOR SWITCH IN61 SHOWN IN "BC" POSITION. SWITCH SEQUENCE: 1. BC 2. SW #1 3. SW #2
RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
1. DC voltage measurements taken with vacuum tube voltmeter
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative
4. Nominal tolerance on component values makes possible a variation of +15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements
⊙ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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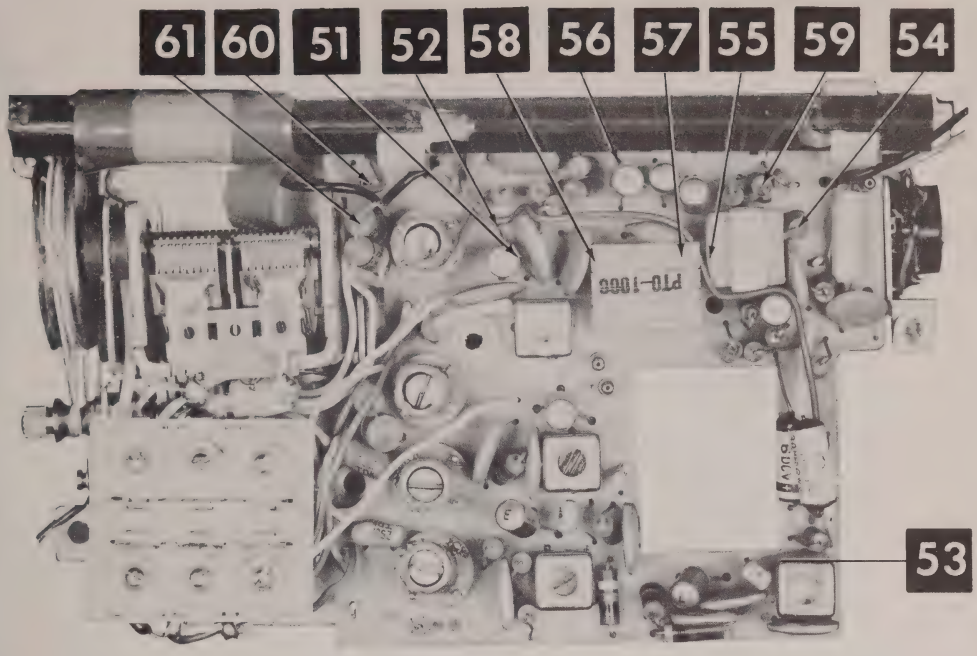
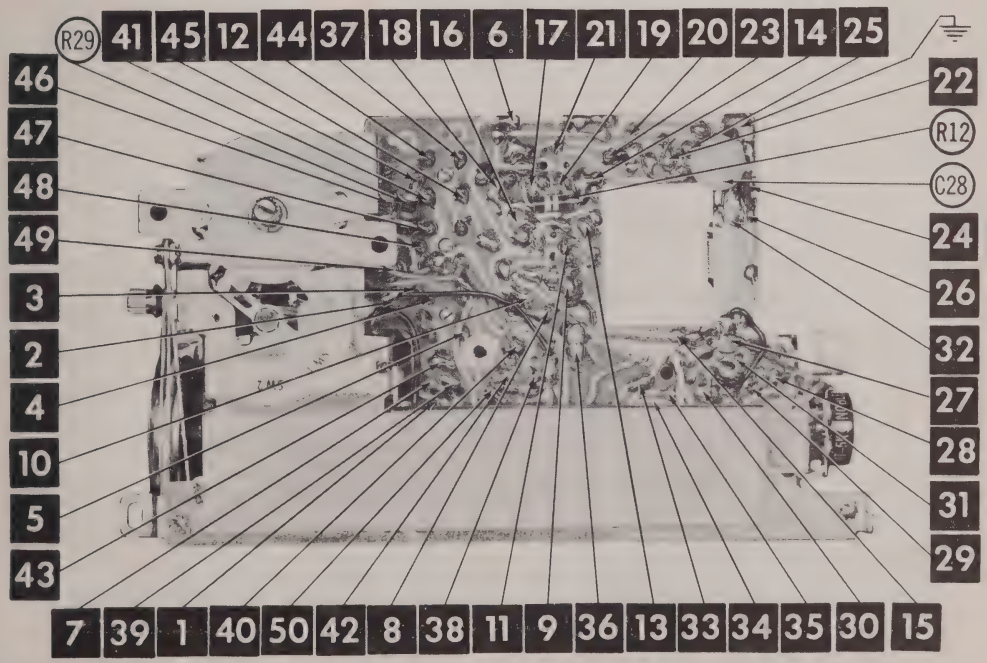
CONTINENTAL MODEL SW-7



A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD — TOP VIEW



A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD — BOTTOM VIEW

ALIGNMENT INSTRUCTIONS

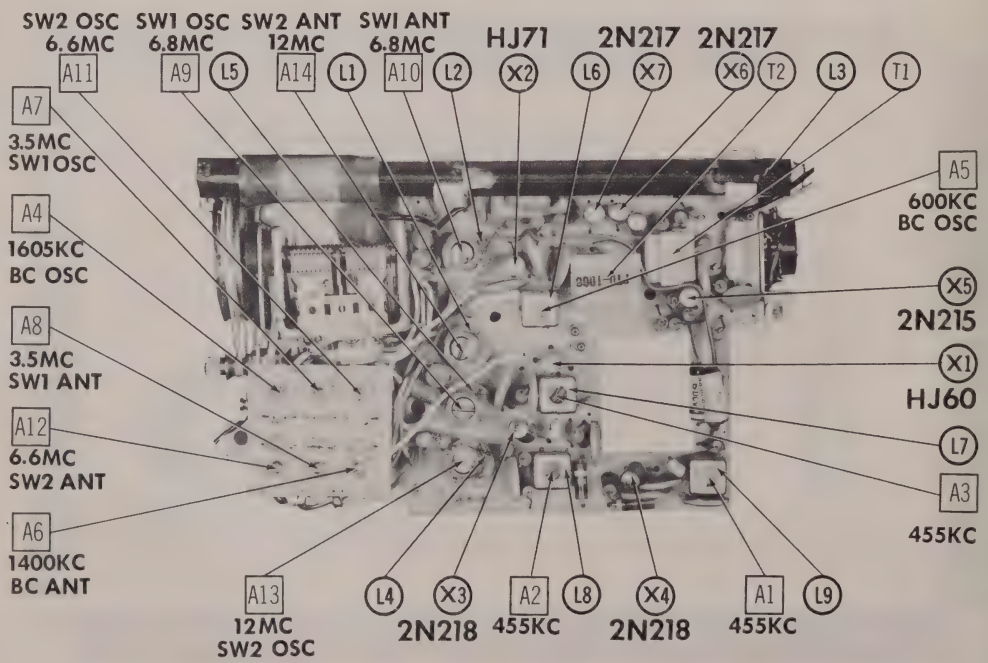
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291

WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .01mfd to base of Mixer. Low side to chassis.	455KC (400~ Mod.)	BC	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	Loop	1605KC	"	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	600KC	"	600KC	"	A5	"
4.	"	1400KC	"	Tune to 1400KC Signal.	"	A6	Adjust for maximum output while rocking tuning gang.
5.	"	3.5MC	SW 1	3.5MC	"	A7, A8	Adjust for maximum output.
6.	"	6.8 MC	SW 1	6.8MC	"	A9, A10	"
7.	"	6.6MC	SW 2	6.6MC	"	A11, A12	"
8.	"	12MC	SW 2	12MC	"	A13, A14	"



CHASSIS TOP VIEW

PHOTOFACT® Folder

CORONADO
MODEL RA48-9903A

CORONADO
MODEL RA48-9903A

CORONADO
MODEL RA48-9903A

TRADE NAME	Coronado Model RA48-9903A (43-9903)
SUPPLIER	Gamble-Skogmo, Inc., 15 N. Eighth Street, Minneapolis 3, Minn.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC RATING 18 MA@9 Volts DC
TUNING RANGE—BROADCAST	540 — 1650KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:
A1 thru A3.....GENERAL CEMENT #5097, 8727
WALSCO #2515
A4, A6.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A5.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to Base of Converter. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	Loop	1650KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	540KC	Tuning gang fully closed.	"	A5	"
4.	"	1400KC	Tune to 1400KC Signal.	"	A6	"
5.	"	600KC	Tune to 600KC Signal.	"	A5	Retouch for maximum output while rocking tuning gang. Repeat Steps 4 and 5.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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JF655

SET 484 FOLDER 8

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N485	Converter		2N175	2N486		PNP
X2	CK879	Overload & AGC			CK879		PNP
X3	2N483	IF Amplifier		2N139	2N483	2N139	PNP
X4	2N482	IF Amp - AF Amp		2N406	2N482	2N406	PNP
X5	CK879	Detector			CK879		PNP
X6	2N631 *	Output		2N408	2N631	2N408	PNP

* Type 2N632 may be used in some versions.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	CORONADO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	80	10		SRE12V100	NLW100-10	TT15X100	MLI00-15	TE-1119, 3	Note 1
C2	25	10	150-133	XPP-10025	NLW25-10	TT10X25	ML30-15	TE-1118	
C3	50	10	150-134	XPP-10050	NLW50-10	TT10X50	ML50-15	TE-1119	
C4	12	10	150-132	XPP-10015	NLW15-10	TT10X15	ML15-25	TE-1116	
C5	25	10	150-133	XPP-10025	NLW25-10	TT10X25	ML30-15	TE-1118	
C6	80	10		SRE12V100	NLW100-10	TT15X100	MLI00-15	TE-1119, 3	Note 1

Note 1. Some versions may use 100mfd in this application (Part #150-148).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C9	50000		BPD-05	DD-503	CUB2S5	IDP-2-503	GP150	5HK-S50
C10	4.7 NPO .25mmf		NPO-S1 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C11	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C12	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C13	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C14	3.5 NPO .25mmf		NPO-D1 3.3	DTZ-3R3	C10V33C	CCTO-3R3	CNO-433	10TCC-V33
C15	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C16	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C17	50000		BPD-05	DD-503	CUB2S5	IDP-2-503	GP120	5HK-S50

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CORONADO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	5000Ω	½	120-163	B-11	A47-5000-S	Q13-114	U12	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KR-4	SWE-13	76-1	US-26	Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

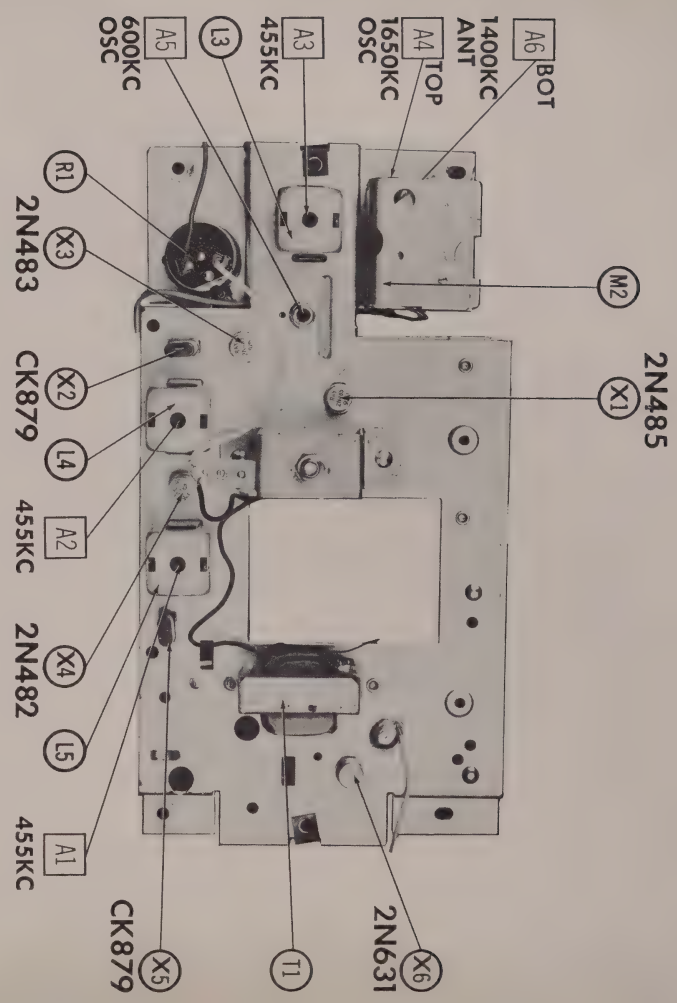
ITEM No.	RATING	REMARKS
R2	33K 5% 1W	
R3	2200Ω	
R4	1000Ω	
R5	1000Ω	
R6	10K	
R7	180K	(220K) *

ITEM No.	RATING	REMARKS
R8	220Ω 5%	(120Ω) *
R9	1500Ω	
R10	12K	
R11	1500Ω	
R12	220Ω 5%	(470Ω) *
R13	2200Ω	

ITEM No.	RATING	REMARKS
R14	10K	
R15	1500Ω	
R16	68Ω	
R17	470Ω	

* Alternate Value.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		CORONADO PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	132-145①			BC-419			
L2	Osc. Coil	136-146②				2020		
L3	1st IF Trans.	130-139						
L4	2nd IF Trans.	130-140						
L5	3rd IF Trans.	130-141						

① Some versions may use Part #132-145C.
② Some versions may use Part #136-146B.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	CORONADO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	360Ω	3-4Ω	138-144							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	CORONADO PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω		4A1	

BATTERIES

ITEM No.	VOLTAGE	CORONADO	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
		PART No.	"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	B17402 *		130 *		635 *		M-14R *	* 6 Required.

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M2	Tuning Cap	160-135B	2 Gang (Ant. 24—272mmf, Osc. 23—125mmf)
	Earphone	43-9894	

CABINETS & CABINET PARTS

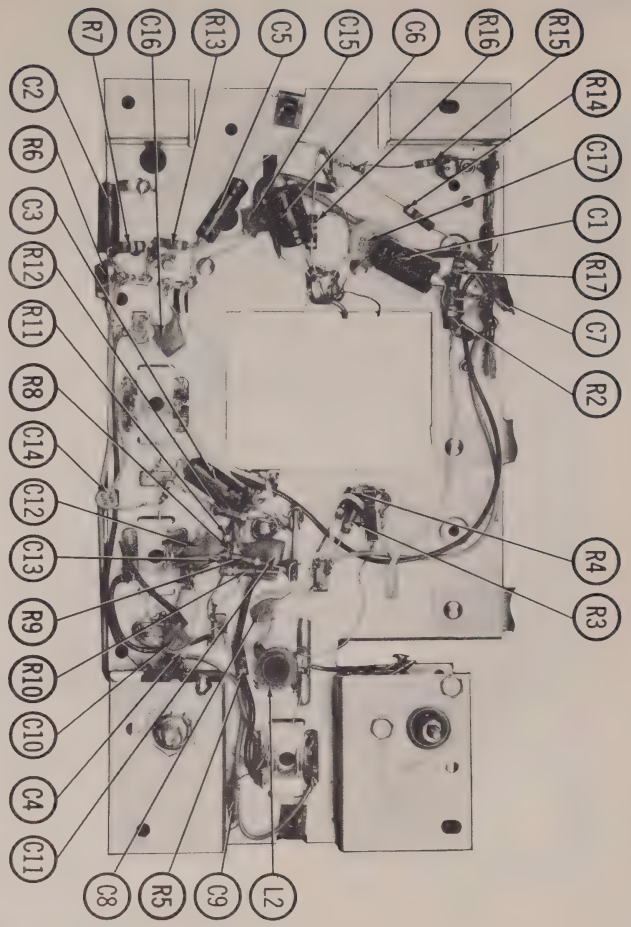
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

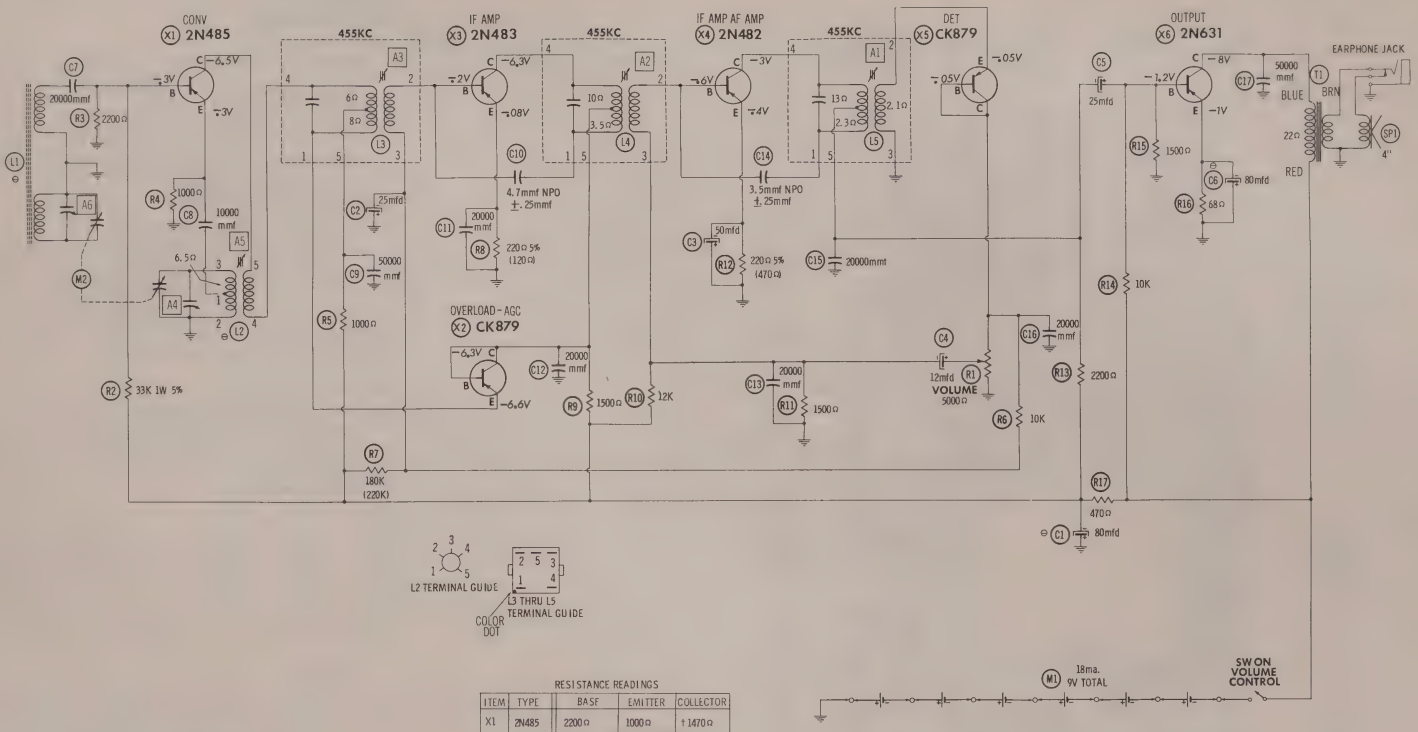
NAME	PART NO.	DESCRIPTION
Knob	220-160	Tuning
Knob	220-178	Volume
Knob	220-180C	Calibration Disc.
Cabinet	210-167E	
Handle	240-134	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N485	2200Ω	1000Ω	†1470Ω
X2	CK879	†1970Ω	†1470Ω	†1970Ω
X3	2N483	15K	220Ω	†1970Ω
X4	2N482	†12K	220Ω	†2670Ω
X5	CK879	5000Ω	2.1Ω	5000Ω
X6	2N631	1500Ω	68Ω	†22Ω

† MEASURED FROM JUNCTION OF R17 AND R14.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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CORONADO
MODEL RA48-9903A

PHOTOFACT® Folder

CURTIS MATHES MODELS MD712, MD912, MD1012, MD1412, MD1512, MD1612, MD1712 (Ch. 12B)

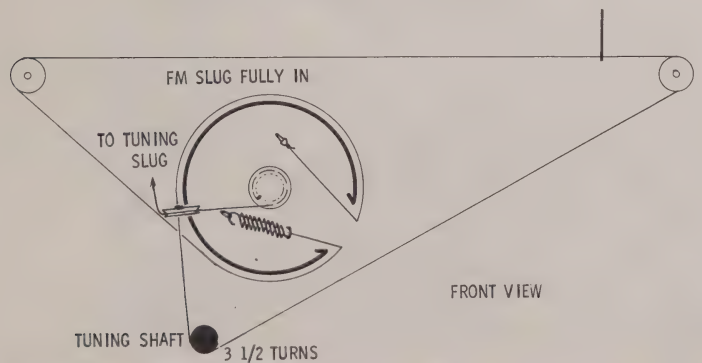
CURTIS MATHES MODELS MD712, MD912, MD1012, MD1412, MD1512, MD1612, MD1712 (Ch. 12B)

MODEL MD1412

TRADE NAME	Curtis Mathes Models MD712, MD912, MD1012, MD1412, MD1512, MD1612, MD1712, (Ch. 12B)		
MANUFACTURER	Curtis Mathes Manufacturing Co., 2220 Young Street, Dallas, Texas		
TYPE SET	AC Operated 17 Tube FM-AM Receiver With Stereo Output And 4 Speed Automatic Record Changer		
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles	RATING	170 Watts, 1.55 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	535 — 1620KC	FREQ. MOD.	88 — 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR V-M 1201 — PHOTOFACT 436 FOLDER 18.

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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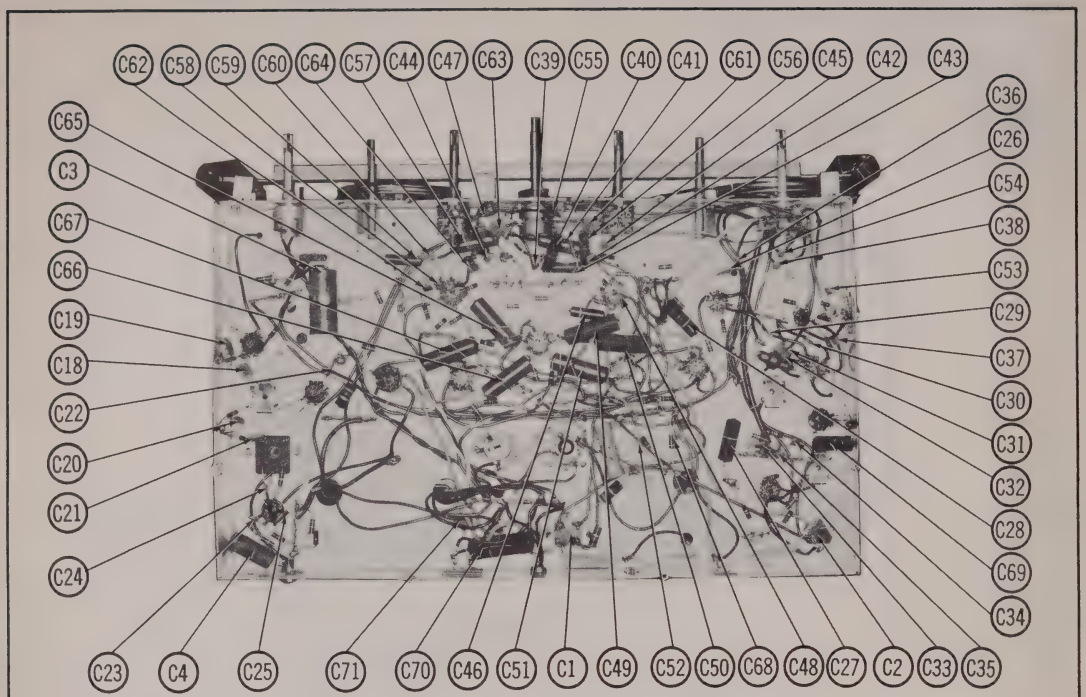
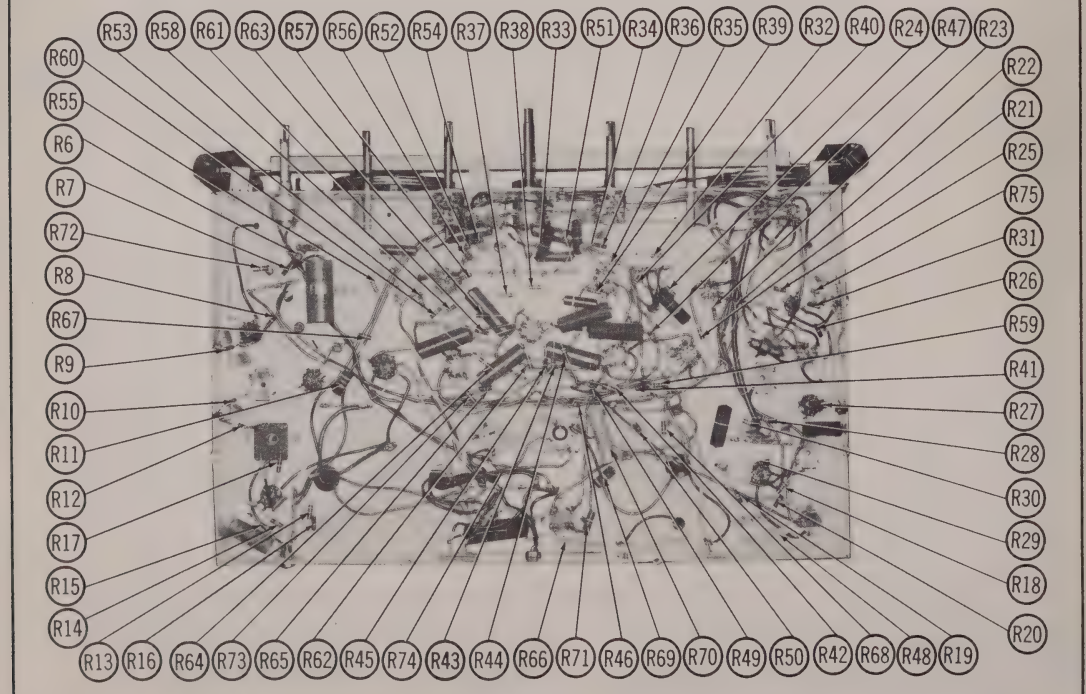
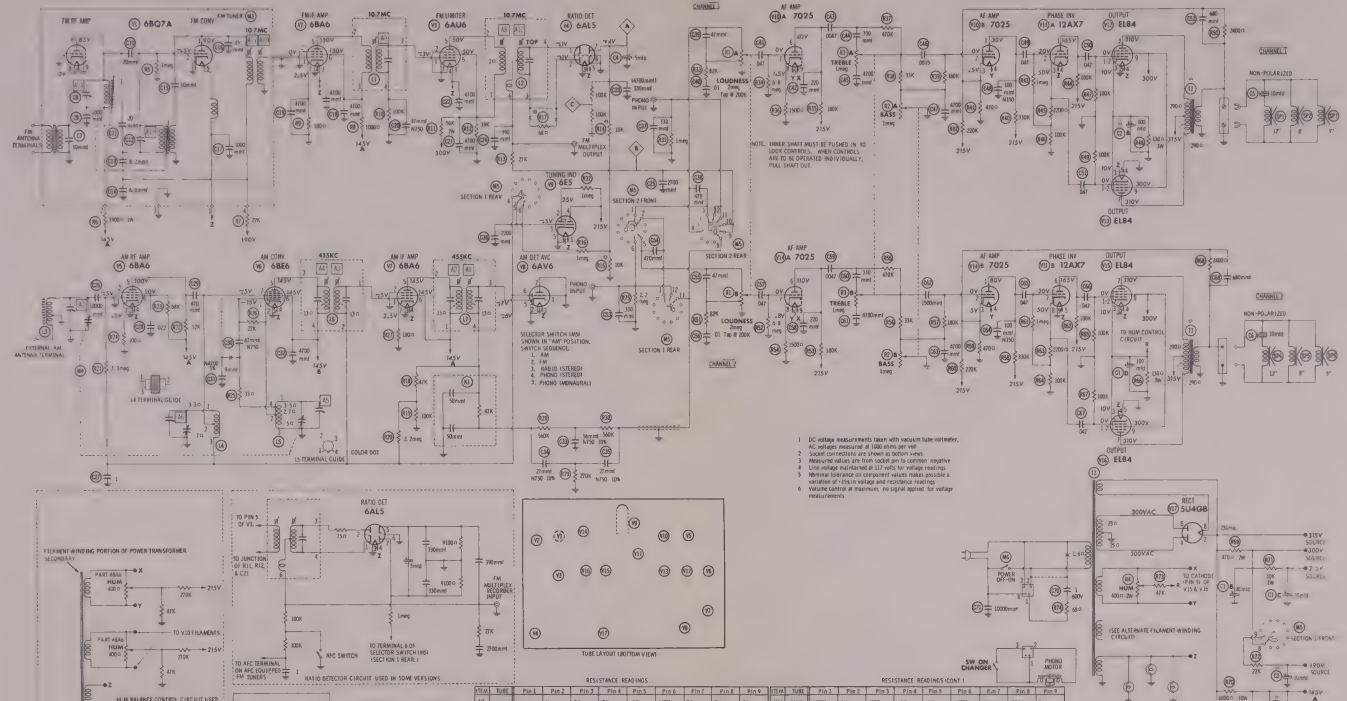


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



1. DC voltage measurements taken with vacuum tube voltmeter. AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	9.66K	10meg	0Ω	0Ω	.1Ω	110K	0Ω	3Ω	0Ω
V2	6BA6	.1Ω	0Ω	.1Ω	0Ω	†1300Ω	†1300Ω	180Ω		
V3	6AU6	100K	0Ω	.1Ω	0Ω	†145K	†145K	0Ω		
V4	6AL5	INF	INF	0Ω	.1Ω	0Ω	0Ω	20K		
V5	6BA6	5.6meg	0Ω	0Ω	1Ω	†1Ω	†1Ω	100Ω		
V6	6BE6	22K	4Ω	0Ω	1Ω	†600Ω	†600Ω	2.7meg		
V7	6BA6	2.1meg	0Ω	0Ω	1Ω	†600Ω	†600Ω	180Ω		
V8	6AV6	8Ω	0Ω	.1Ω	0Ω	150K	2.1meg	0Ω		
V9	6E5	1Ω	†1meg	2.3meg	†13K	0Ω	0Ω	TP	0Ω	
V10	7025	†340K	180K	450Ω	47K	47K	†190K	6.8meg	1500Ω	47K

RESISTANCE READINGS (CONT.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V11	12AX7	†110K	1.1meg	100K	.1Ω	.1Ω	†100K	1 meg	100K	0Ω
V12	ELAB 6BQ5	100K	100K	130Ω	1Ω	0Ω	NC	†290Ω	NC	†470Ω
V13	ELAB 6BQ5	100K	100K	130Ω	1Ω	0Ω	NC	†290Ω	NC	†470Ω
V14	7025	†340K	180K	450Ω	47K	47K	†190K	6.8meg	1500Ω	47K
V15	ELAB 6BQ5	100K	100K	130Ω	1Ω	0Ω	NC	†290Ω	NC	†470Ω
V16	ELAB 6BQ5	100K	100K	130Ω	.1Ω	0Ω	NC	†290Ω	NC	†470Ω
V17	5U4GB	INF.	†	NC	25Ω	NC	23Ω	NC	†	

†TRES READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 2 OF V17
NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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CURTIS MATHES MODELS MD712, MD912, MD1012, MD1412, MD1512, MD1612, MD1712 (Ch. 12B)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:

A1 thru A4, A9.....	GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989 WALSCO #2515, 2531, 2532
A5, A6, A7.....	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A8, A12.....	GENERAL CEMENT #9091, 9091-L WALSCO #2542
A10, A11.....	GENERAL CEMENT #8282, 8606, 8606-L, 9091 WALSCO #2526, 2541, 2542, 2543, 2544
A13, A14.....	GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291 WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

AM ALIGNMENT – SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to AM external antenna terminal. Low side to chassis.	455KC (400~ Mod.)	(AM) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	High side thru .1mfd to pin 1 (grid) of AM RF Amp. Low side to chassis.	1620KC	"	"	A5	"
3.	"	1400KC	Tune to 1400KC Signal.	"	A6	Set pointer to 1400KC. Adjust A6 for maximum output.
4.	High side thru 50mmf to AM external antenna. Low side to chassis.	"	"	"	A7	Adjust for maximum output while rocking tuning gang.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM –SELECTOR IN FM POSITION

Connect two matched 100K (± 1%) resistors in series from point (A) to chassis. The junction of these two resistors is alignment point (C) as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	Across FM antenna terminals with 120Ω in each lead.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (A). Common to chassis.	A8, A9, A10, A11	Adjust for maximum deflection.
6.	"	"	"	DC probe to point (B). Common to point (C).	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE – SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	Across FM antenna terminals with 120Ω in each lead.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert amp. to point (A). Low side to chassis.	A8, A9, A10, A11	Disconnect Stabilizing Capacitor C4. Adjust for maximum gain and symmetry of response similar to Fig. 1. Reconnect C4.
6.	"	"	"	Vert. amp. to point (B). Low side to chassis.	A12	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT – SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 120Ω in each lead.	108MC (Unmod.)	(FM) 108MC	DC probe to point (A). Common to chassis.	A13	Adjust for maximum deflection.
8.	"	98MC	98MC	"	A14	"

FIG. 1

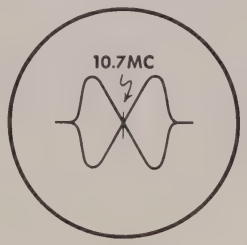
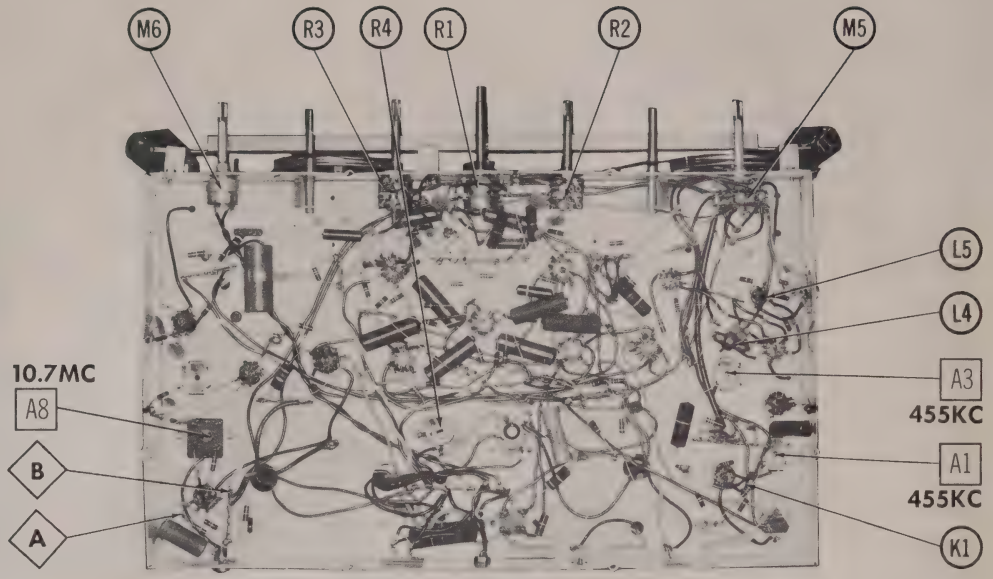
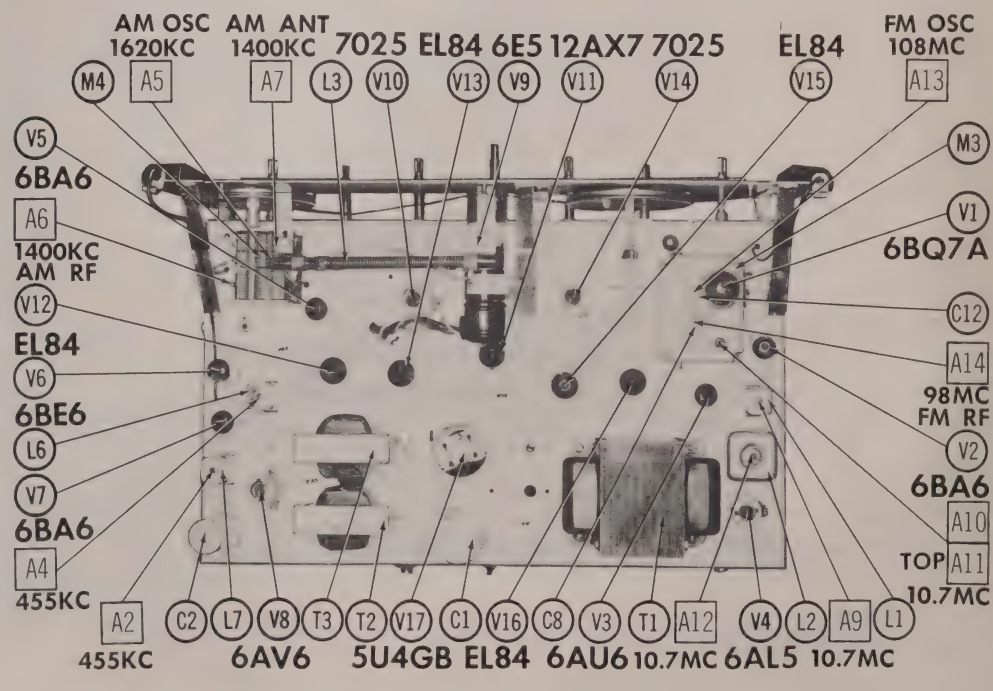


FIG. 2



CHASSIS BOTTOM VIEW - ALIGNMENT, INDUCTOR & MISC. IDENT.



CHASSIS - TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (CBS • GENERAL ELECTRIC)	ITEM No.	USE	TYPE (RAYTHEON • SYLVANIA)
V1	FM RF Amp. - FM Conv.	6BQ7A	V10	Channel 1 AF Amp.	7025
V2	1st FM IF Amplifier	6BA6	V11	Channel 1 Phase Inv. - Channel 2 Phase Inv.	12AX7
V3	FM Limiter	6AU6	V12	Channel 1 Output	EL84/6BQ5
V4	Ratio Detector	6AL5	V13	Channel 1 Output	EL84/6BQ5
V5	AM RF Amplifier	6BA6	V14	Channel 2 AF Amp.	7025
V6	AM Converter	6BE6	V15	Channel 2 Output	EL84/6BQ5
V7	AM IF Amplifier	6BA6	V16	Channel 2 Output	EL84/6BQ5
V8	AM Det. - AVC	6AV6	V17	Rectifier	5U4GB
V9	Tuning Indicator	6E5			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Curtis Mathes PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	60	400	4A4	AFH4-57-93	D0660	FP431.7	TMQ-100	TVL-4747	
B	40	400							
C	10	400							
D	100	25							
C2A	40	400	4A13 ①	AFH2-86-45	B0623	FP229.55	TMD-99	TVL-2709	
B	100	25							
C3	10	450	4A14 ①	PRS1720	BR1045	TC72	TD-10-450	TVA-1705	
C4	5	25	4A3-A	PRS1310	BBR5-50	TC30	TT25X5	TVA-1203	
C5	10	25NP		PRS7315	BBR20-50 †	TCN5010		TVANS-1204.1*	
C6	10	25NP		PRS7315	BBR20-50 †	TNC5010		TVANS-1204.1*	

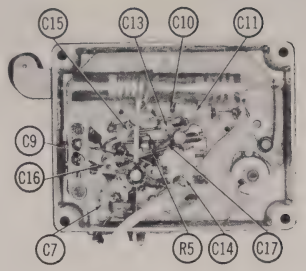
① C3 may be part of C2 in some versions (Part #4A12).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Use 2 units. Connect negative terminals together. Connect positive terminals into circuit the same as the original non-polarized unit.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	10								
C8									
C9	1000			SI 1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C10	20								
C11	20								
C12									
C13	8.2								
C14	6.8								
C15	10								
C16	15								
C17	1000			SI 1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C18	4700			BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C19	4700			BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C20	47	N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C21	4700			BPD-0047	DD-272	BYA10D47M	CCD-472	GP247	5HK-D47
C22	4700			BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C23	330		(4700) †	BPD-00033	DD-331	L10T33	CCD-331	GP333	10TS-T33
C24	390			DI-390	DD-391	L10T39	CCD-391	GP339	10TS-T39
C25	2700			DI-2700	DD-272	BYA10D27	CCD-272	GP227	10TS-D27
C26	10000			BPD-01	DD-103	BYA10SI	CCD-103	GP110	5HK-SI0
C27	.1	200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C28	.022	400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C29	470			BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C30	47	N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C31	9	N4700 5%					*		
C32	4700			BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C33	56	N750 10%			TCN-56	C10Q56U	CCTN-560	CN7-456	10TCU-Q56
C34	27	N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C35	27	N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C36	2200			BPD-0022	DD-2200	BYA10D22	CCD-222	GP222	5HK-D22
C37	330			BPD-00033	DD-331	L10T33	CCD-331	GP333	10TS-T33
C38	470			BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C39	47			DI-47	DD-470	L0Q47	CCD-470	GP447	10TS-Q47

FM RF SUBCHASSIS



FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C40	.01 200V		P288N-01	D6-103	CUB4SI	4DP-1-103	GEM-411	4TM-SI0
C41	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C42	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C43	.0047 400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C44	330		BPD-00033	DD-331	L10T33	CCD-331	GP333	10TS-T33
C45	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C46	.0015 400V		P488N-0015	D6-152	CUB6DI5	6DP-1-152	GEM-6215	6TM-DI5
C47	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C48	100 N150					*		10TCP-T10
C49	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C50	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C51	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C52	680		DI-680	DD-681	BYA10T68	CCD-681	GP368	10TS-T68
C53	330		BPD-00033	DD-331	L10T33	CCD-331	GP333	10TS-T33
C54	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C55	47		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C56	.01 200V		P288N-01	DD-103	CUB4SI	4DP-1-103	GEM-411	4TM-SI
C57	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C58	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C59	.0047 400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	4TM-D47
C60	330		BPD-00033	DD-331	L10T33	CCD-331	GP333	10TS-T33
C61	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C62	1500		BPD-0015	DD-152	BYA10DI5	CCD-152	GP215	5HK-DI5
C63	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C64	100 N150					*		10TCP-T10
C65	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C66	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C67	.047 300V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C68	680		DI-680	DD-681	BYA10T68	CCD-681	GP368	10TS-T68
C69	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C70	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C71	10000		BPD-01	DD-103	DD-103	CCD-103	GP110	5HK-SI0

† Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Curtis Mathes PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg 200K Tap	½	2A20					Loudness, Channel 2
B	2meg 200K Tap	½						Loudness, Channel 1

CURTIS MATHES MODELS MD712, MD912, MD1012, MD1412, MD1512, MD1612, MD1712 (CH. 12B)

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS (cont)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Curtis-Mathes PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R2A	1meg		2A19	B-70	AD47-1meg-Z		FA16A	Bass, Channel 2
B	1meg			SR-70	Not Req.		RU16A	Bass, Channel 1
C	Shaft			Not Req.	KSS-3		CS3500	
R3A	1meg		2A19	B-70	AD47-1meg-Z		FA16A	Treble, Channel 1
B	1meg			SR-70	Not Req.		RU16A	Treble, Channel 2
C	Shaft			Not Req.	KSS-3		CS3500	
R4A	400Ω	2(WW)	8A6	WN-401	A43-400	WN-202		Hum
B	Shaft			Not Req.		SK5		

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	1meg	
R6	3900Ω 1W	
R7	22K	
R8	1000Ω	
R9	180Ω	
R10	100K	
R11	56K 2W	
R12	39K	
R13	27K	
R14	10K	Note 1
R15	10K	Note 1
R16	1meg	
R17	68Ω	Note 2
R18	47K	
R19	100K	
R20	2. 2meg	
R21	3. 3meg	
R22	12K	
R23	68K	
R24	100Ω	
R25	33Ω	
R26	22K	
R27	180Ω	
R28	560K	

ITEM No.	RATING	REMARKS
R29	270K	
R30	560K	
R31	1meg	
R32	1meg	
R33	82K	
R34	6. 8meg	
R35	180K	
R36	1500Ω	
R37	470K	
R38	33K	
R39	180K	
R40	330K	
R41	470Ω	
R42	220K	
R43	1meg	
R44	100K	
R45	2200Ω	
R46	100K	
R47	100K	
R48	130Ω 3W	#8A3
R49	100K	
R50	2400Ω	
R51	82K	
R52	6. 8meg	

ITEM No.	RATING	REMARKS
R53	180K	
R54	1500Ω	
R55	470K	
R56	33K	
R57	180K	
R58	330K	
R59	470Ω	
R60	220K	
R61	1meg	
R62	100K	
R63	2200Ω	
R64	100K	
R65	100K	
R66	130Ω 3W	#8A3
R67	100K	
R68	2400Ω	
R69	470Ω 2W	
R70	6000Ω 10W	#8A10
R71	10K 1W	
R72	22K	
R73	47K	
R74	68Ω	
R75	2. 2meg	

Note 1. Some versions may use 9100Ω in this application.
Note 2. Not used in some versions.
Curtis Mathes Part Number.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Curtis Mathes PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	2nd FM IF Trans.	1A10	16-3487	16-3487	FM-254	1463		
L2	Ratio Detector	1A9	17-3487	17-3487	FM-254	1465 †		
L3	Loopstick	1A11	14-7002	14-7002		705-A		
L4	AM RF Coil	1A3			BC-394			
L5	AM Osc. Coil	1A2						
L6	AM Input IF Trans.	1A4	16-6758	16-6758	BC-352	12-C1	RF-1	
L7	AM Output IF Trans.	1A5	16-6758	16-6758	BC-353	12-C2	RF-2	

† Use Adapter Plate

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Curtis Mathes PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V@ 1. 55A	600 VCT @. 23A	5V@3A	12A5						
	SEC. 3	SEC. 4	SEC. 5							
	11V@. 3A	11V Not Used	6. 3V@ 6. 2A							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Curtis Mathes PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	4500Ω CT	3-4Ω	10A3	24S42	A-2905		A-3880	24S42	S-57Z	
T3	4500Ω CT	3-4Ω	10A3①	24S42	A-2905		A-3880	24S42	S-57Z	

① Alternate Part #10A3-1.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Curtis Mathes PART No.	QUAM PART No.	NOTES
SP1	12"	PM	3-4Ω	12LB-38A	12A6A	
SP2	8"	PM	8-10Ω	8EV-39	8A12B. 4	
SP3	5"	PM	6-8Ω	5CM-98	5A15	
SP4	12"	PM	3-4Ω	12LB-38A	12A6A	
SP5	8"	PM	8-10Ω	8EV-39	8A12B. 4	
SP6	5"	PM	6-8Ω	5CM-98	5A15	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Curtis Mathes PART No.	REPLACEMENT DATA
K1	AM Det. RF Filter	50mmf, 50mmf, 47K		Aerovox PA-99 Centralab PC-52 Cornell-Dubilier 1117TM3 Sprague D-3

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA Curtis Mathes PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE
M1		13T	Not Req.	13	Not Req.			* 10T2-S	Not Req.

* Includes Holder.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA Curtis Mathes PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	REMARKS
M2		W-204DS †♦ or W-204DD-1♦	* A-44X † or * A-44XSD †♦ or * A-44XDD ♦	† Jewel ♦ Diamond * Includes Cartridge

MISCELLANEOUS

ITEM No.	PART NAME	Curtis Mathes PART No.	NOTES
M3	Tuner		FM Complete
M4	Tuning Cap	3A4	3 Gang (Ant. 47—536mmf, RF 17—249mmf, Osc. 18-78mmf)
M5	Switch	6A13	Function
M6	Switch	6A12	Power Off-On

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

EICO
MODEL HF-30

EICO
MODEL HF-30

EICO
MODEL HF-30

TRADE NAME	Eico Model HF-30
MANUFACTURER	Electronic Instrument Co., Inc., 3300 Northern Blvd., Long Island City 1, N. Y.
TYPE SET	AC Operated 7 Tube Audio Amplifier
POWER SUPPLY	110-120 Volts AC, 50 Cycles RATING 110 Watts, 1.0 Amp. @ 17 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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JX630

SET 484 FOLDER 10

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (CBS • GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	AF Amp. -Phase Inv.	7247 (12DW7) *
V2	Output	EL84 (6BQ5) *
V3	Output	EL84 (6BQ5) *
V4	Output	EL84 (6BQ5) *
V5	Output	EL84 (6BQ5) *
V6	Rectifier	EZ81 (6CA4) *
V7	Rectifier	EZ81 (6CA4) *

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA EICO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	24012	AFH3-43-50	C0344	FP447	TMQ-123	TVL-3780 TVA-1712	
B	■20	450							
C	▲20	450							
D	20	450							
C2	300	25	23017	PRS1540	BR30015	TC499	TD-500-25	TVAS-1208.5*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-270	CNO-425	10TCC-Q25
C4	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-270	CNO-425	10TCC-Q25
C5	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-270	CNO-425	10TCC-Q25
C6	25000				ST6S25	6DP-3-253	GEM-6125	5HK-S25
C7	25000				ST6S25	6DP-3-253	GEM-6125	5HK-S25
C8	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-270	CNO-425	10TCC-Q25
C9	100 10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C10	.03 600V		P688N-03	DD-303	CUB6S3	6DP-3-303	GEM-613	6TM-S3

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA EICO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	18050	AB-60	A47-500K-Z	B13-133	U48	Level Adj.
B	Shaft			AK-1	FKS-1/4	SK2		

RESISTORS

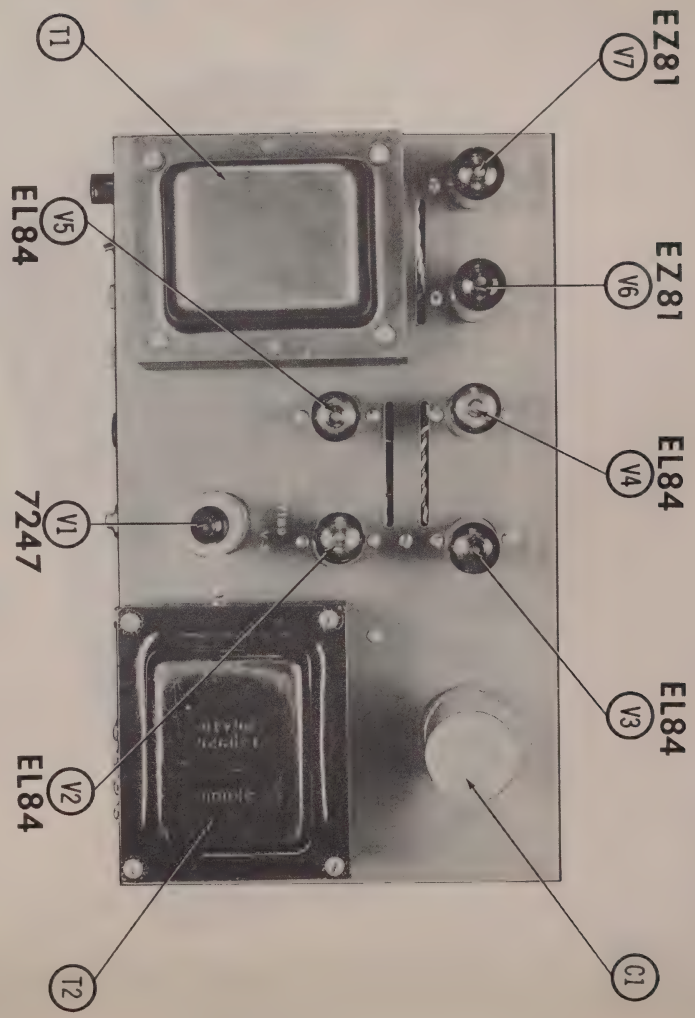
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	10K	
R3	330K	
R4	1600Ω 5%	
R5	82K 5%	
R6	82K 5%	
R7	1000Ω	

ITEM No.	RATING	REMARKS
R8	330K	
R9	1000Ω	
R10	1000Ω	
R11	330K	
R12	1000Ω	
R13	80Ω 5% 5W	

ITEM No.	RATING	REMARKS
R14	33K 5%	
R15	33K 1W	
R16	80Ω 5% 5W	
R17	680Ω	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	EICO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1A	600 VCT @ .175A	6.3V @ 1.8A	30021						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 3.7A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	EICO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4100Ω CT	16Ω Tap @ 8Ω, 4Ω	32008							

FUSES

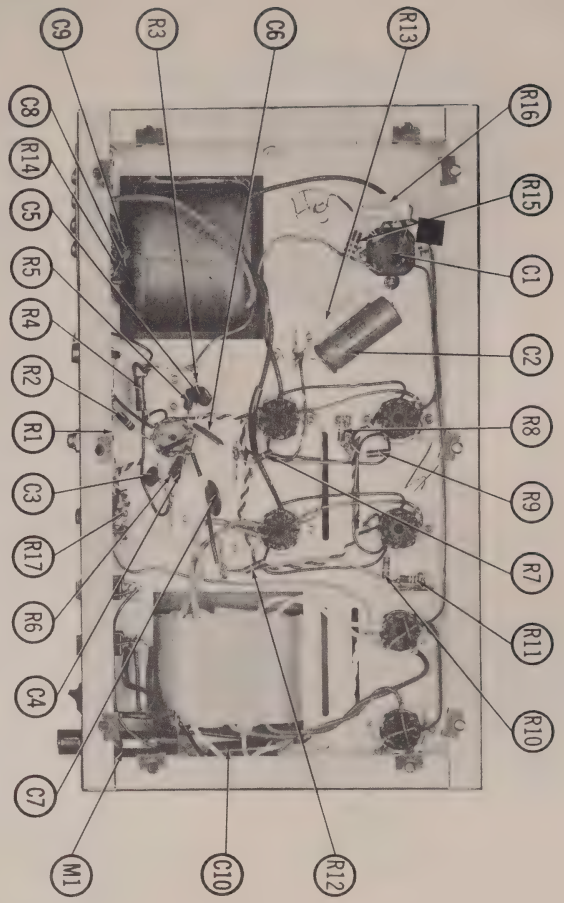
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			EICO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3A 250V	91005	97800	312003 (3AG 3A 250V)	342001	AGC 3	HKP

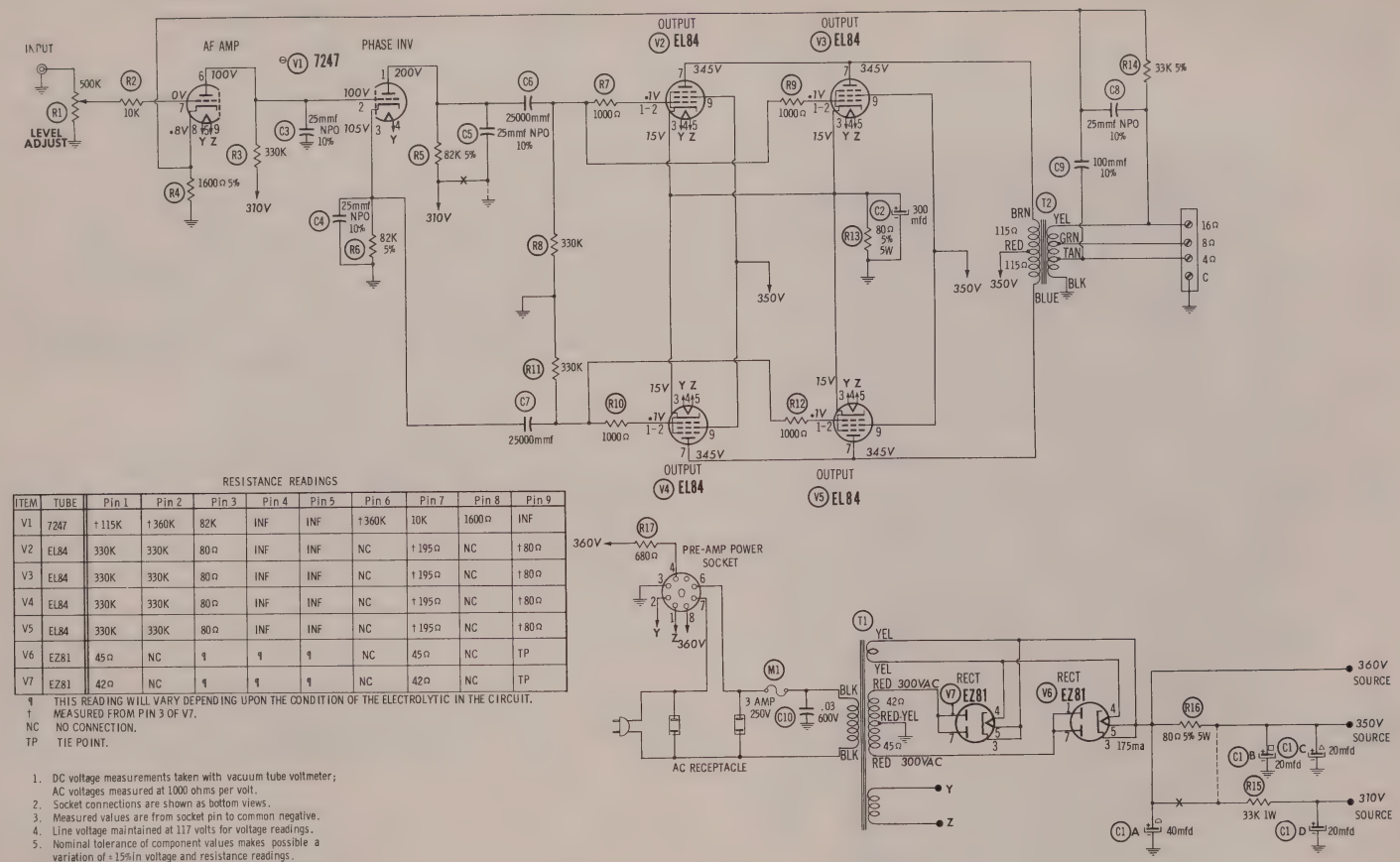
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	7247	†115K	†360K	82K	INF	INF	†360K	10K	1600Ω	INF
V2	EL84	330K	330K	80Ω	INF	INF	NC	†195Ω	NC	†80Ω
V3	EL84	330K	330K	80Ω	INF	INF	NC	†195Ω	NC	†80Ω
V4	EL84	330K	330K	80Ω	INF	INF	NC	†195Ω	NC	†80Ω
V5	EL84	330K	330K	80Ω	INF	INF	NC	†195Ω	NC	†80Ω
V6	EZ81	45Ω	NC	¶	¶	¶	NC	45Ω	NC	TP
V7	EZ81	42Ω	NC	¶	¶	¶	NC	42Ω	NC	TP

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V7.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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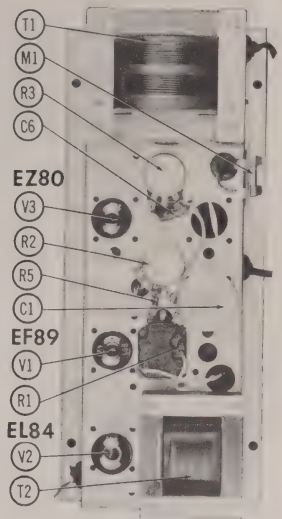
Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

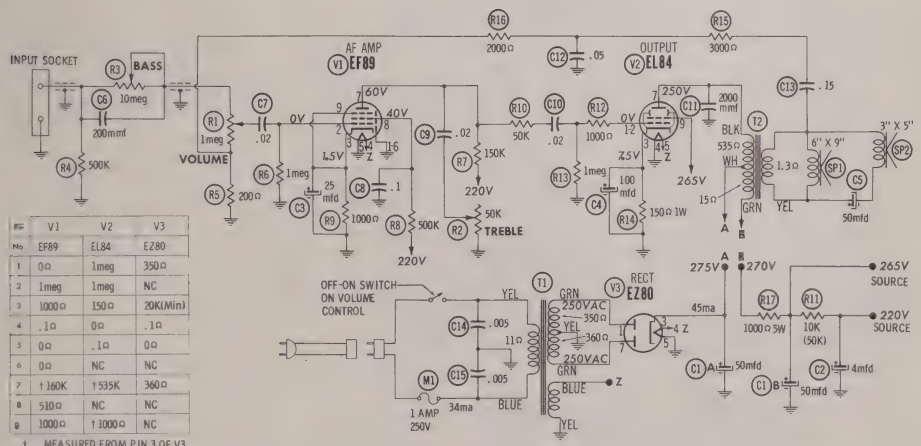
EICO MODEL HF-30

PHOTOFACT® Folder

EMUD
MODEL Stereo Box



TRADE NAME	Emud Model Stereo Box.
IMPORTER	Delmonico International Corp., 42-24 Orchard Street, Long Island City 1, N. Y.
TYPE SET	AC Operated 3 Tube Audio Amplifier
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 34 Watts, .34 Amp. @117 Volts AC



	V1	V2	V3
PIN No	EF89	EL84	EZ80
1	0Ω	1meg	350Ω
2	1meg	1meg	NC
3	1000Ω	150Ω	20K(Min)
4	.1Ω	0Ω	.1Ω
5	0Ω	.1Ω	0Ω
6	0Ω	NC	NC
7	†160K	†535K	360Ω
8	510Ω	NC	NC
9	1000Ω	†1000Ω	NC

† MEASURED FROM PIN 3 OF V3.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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EMUD
MODEL Stereo Box

SET 484 FOLDER 11

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	AF Amplifier	EF89	V3	Rectifier	EZ80
V2	Output	EL84			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA EMUD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	50	350							
B	50	350		PRS1600	BR435	TC70	TD-4-450	TVA-1601	
C2	4	350		XPP-12025	BBR25-25	TC26	TD-25-25	TE-1131	
C3	25	12		SRE12V100	BBR100-15	TT15X100	ML100-15	TE-1135	
C4	100	12		XPP-12050	NLW50-10	TT15X50	ML50-15	TE-1160	
C5	50	12							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	200		SI 200	D6-201	L10T2	DD-201	GP320	10TCC-T20
C7	.02 500V		P688N-02	DD-203	CUB6S2	6DP-2-203	GEM-612	6TM-S2
C8	.1 500V		P688N-1	DF-104	CUB6P1	6DP-1-104	GEM-601	6TM-P1
C9	.02 500V		P688N-02	DD-203	CUB6S2	6DP-2-203	GEM-612	6TM-S2
C10	.02 500V		P688N-02	DD-203	CUB6S2	6DP-2-203	GEM-612	6TM-S2
C11	2000		SI 2000	D6-202	BYA10D2	CCD-202	GP220	5HK-D2
C12	.05 125V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S5
C13	.15 125V		P288N-15		CUB2P15	4DP-3-153	GEM-2015	2TM-P15
C14	.005 250V		P488N-005	D6-502	CUB6D5	6DP-1-502	GEM-4247	6TM-D5
C15	.005 250V		P488N-005	D6-502	CUB6D5	6DP-1-502	GEM-4247	6TM-D5

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA EMUD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½		AB-69				Volume
B	Shaft			AK-29				
C	Switch			KR-1				Power Off-On
R2A	50K	½		AB-34				Treble
B	Shaft			AK-29				
R3	10meg	½						Bass

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R4	500K	
R5	200Ω	
R6	1meg	
R7	150K	
R8	500K	

ITEM No.	RATING	REMARKS
R9	1000Ω	
R10	50K	
R11	10K	(50K) *
R12	1000Ω	
R13	1meg	

ITEM No.	RATING	REMARKS
R14	150Ω 1W	
R15	3000Ω	
R16	2000Ω	
R17	1000Ω 5W	

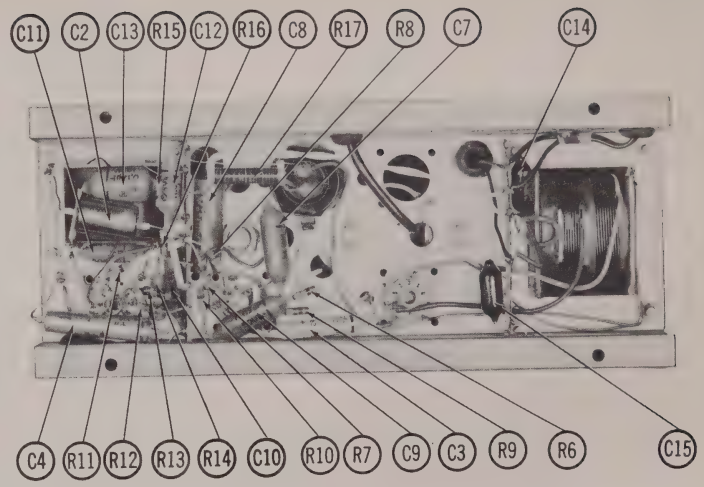
* Alternate Value.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA EMUD PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V Ⓐ .34A	500 VCT Ⓐ .045A	6.3V Ⓐ 1.9A		22R00①	P-3048		PM-8403①	22R00①	R-8B①

① Tape 5 Volt Winding.

CHASSIS



TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA EMUD PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	4800Ω	4-6Ω								

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA EMUD PART No.	QUAM PART No.	NOTES
SP1	6"x 9"	PM	4-6Ω			
SP2	3"x 5"	PM	4-6Ω			

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA EMUD PART No. FUSE	EMUD PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1		1A 250					GMA 1	

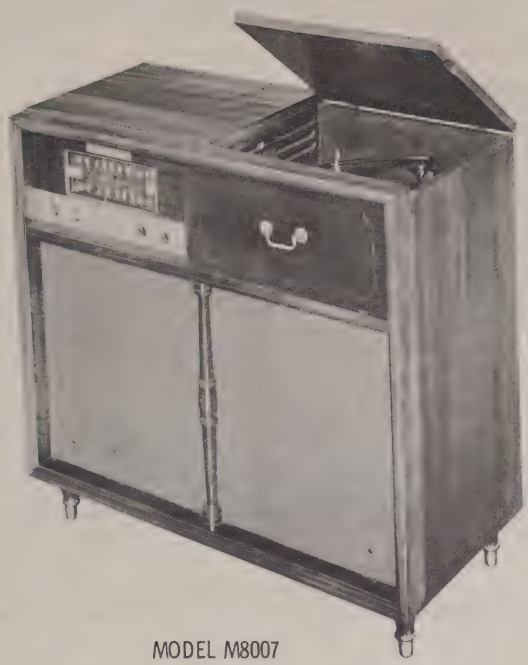
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

PHOTOFACT® Folder

HOFFMAN MODELS B8007, M8007, SP8007, W8007 (Ch. 1130)

HOFFMAN MODELS B8007, M8007, SP8007, W8007 (Ch. 1130)



MODEL M8007

HOFFMAN MODELS B8007, M8007, SP8007, W8007 (Ch. 1130)

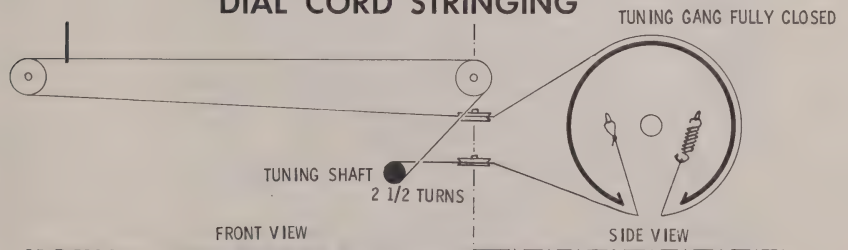
TRADE NAME	Hoffman Models B8007, M8007, SP8007, W8007 (Ch. 1130)		
MANUFACTURER	Hoffman Electronics Corp., Consumer Products Div., 6200 Avalon Blvd., Los Angeles 3, California		
TYPE SET	AC Operated 13 Tube FM-AM Receiver With Stereo Output And 4 Speed Automatic Record Changer		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	105 Watts, .95 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535 – 1620KC	FREQ. MOD.	88 – 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #990008 – SEE SIMILAR WEBCOR 171 –PHOTOFACT SET 447 FOLDER 13

DISASSEMBLY

1. Remove push-on type control knobs.
2. Remove 12 wood screws holding rear cover. Remove cover.
3. Remove antenna leads, speaker plug, lamp plug, and phono plugs.
4. Remove rear mounting board by removing 3 wood screws.
5. Remove 4 chassis mounting bolts. Remove chassis.

DIAL CORD STRINGING



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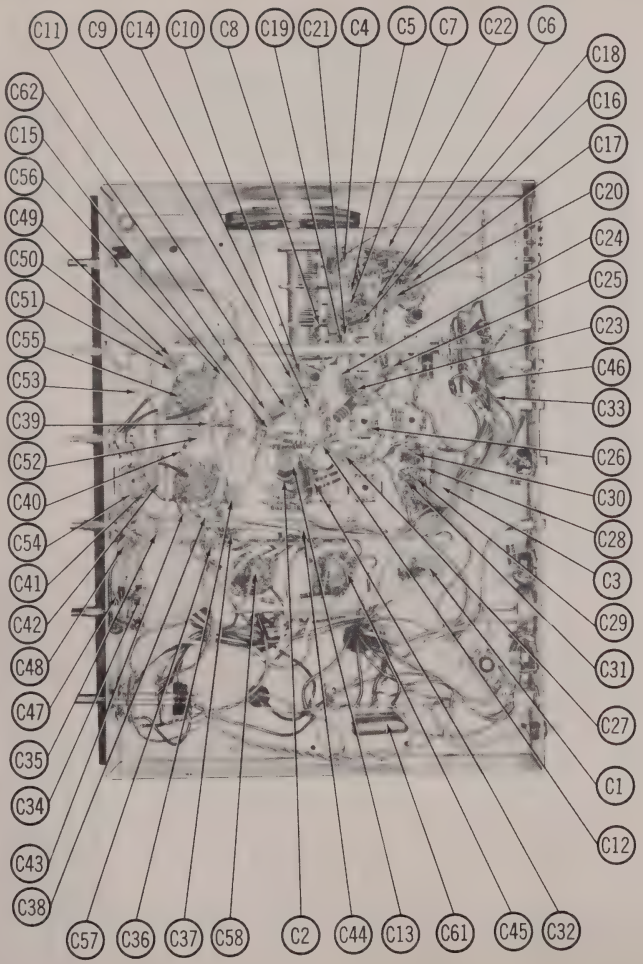
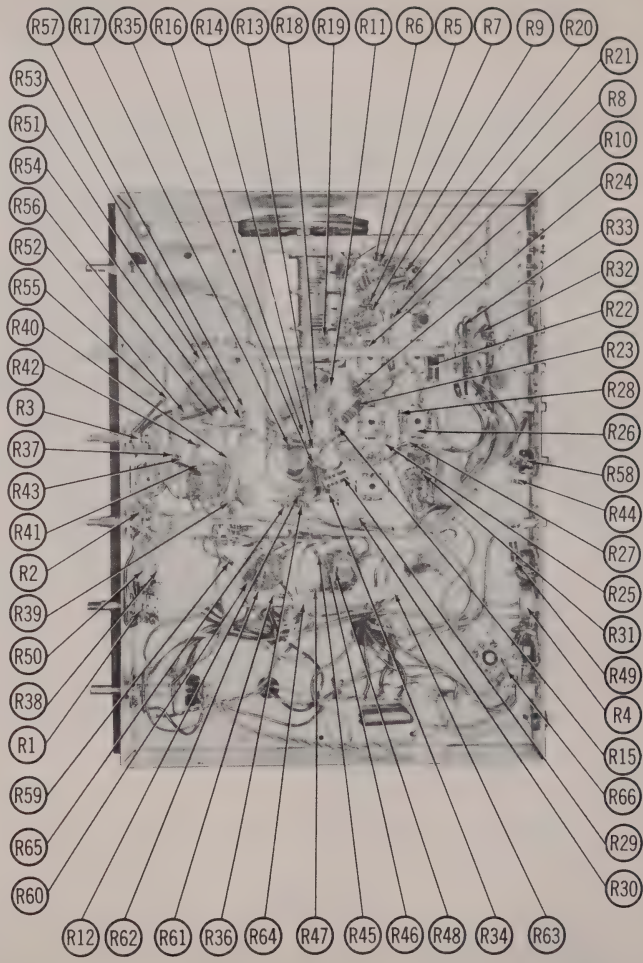
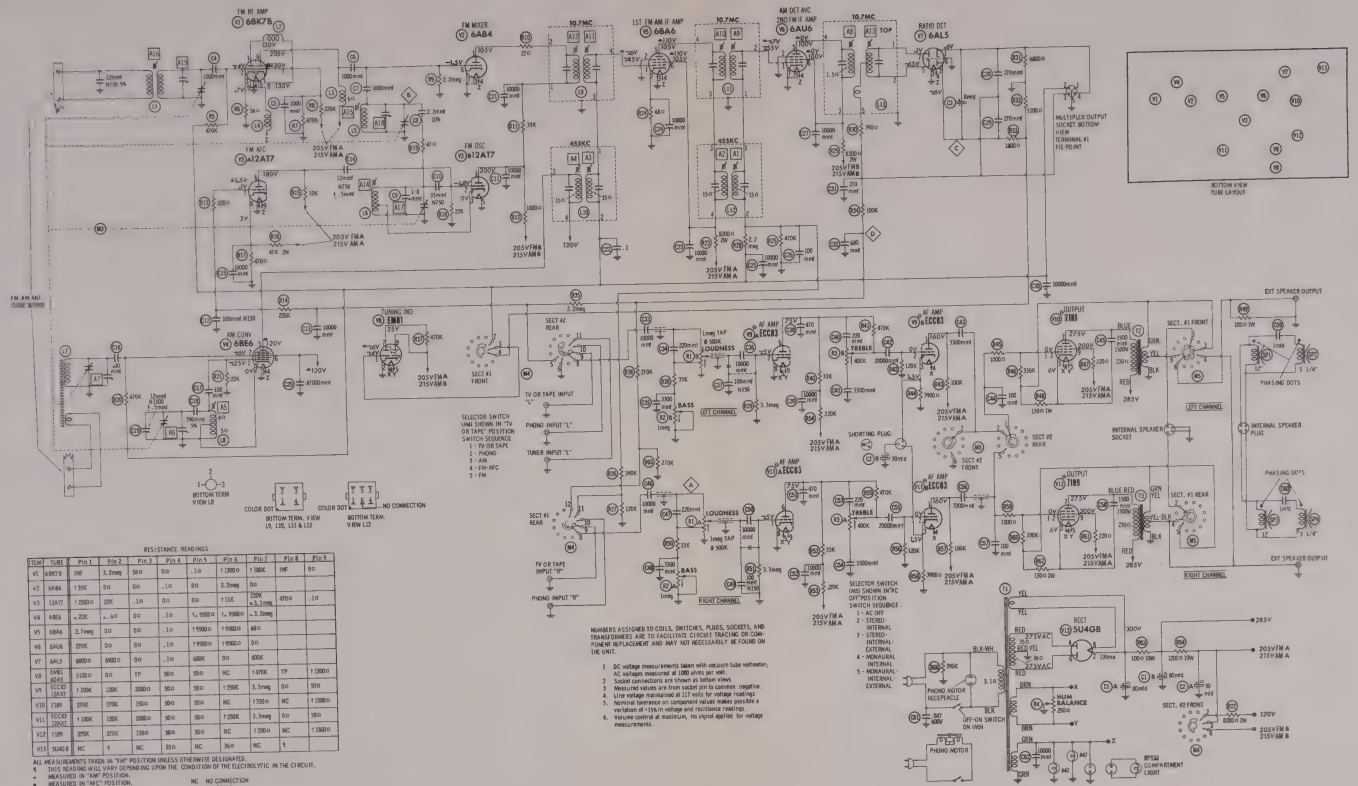
SET 484 FOLDER 12



CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BK7B	INF	3.2meg	56Ω	0Ω	1Ω	130Ω	180K	INF	0Ω
V2	6AB4	135K	0Ω	0Ω	1Ω	0Ω	2.2meg	0Ω		
V3	12AT7	2500Ω	22K	1Ω	0Ω	0Ω	11K	220K ±3.19MΩ	470Ω	1Ω
V4	6BE6	22K	40Ω	0Ω	1Ω	9500Ω	3.2meg			
V5	6BA6	2.7meg	0Ω	0Ω	1Ω	9500Ω	9500Ω	68Ω		
V6	6AU6	270K	0Ω	0Ω	1Ω	9500Ω	9500Ω	0Ω		
V7	6AL5	6800Ω	6600Ω	0Ω	1Ω	680K	0Ω	680K		
V8	EM81	5120Ω	0Ω	TP	50Ω	50Ω	NC	140K	TP	1300Ω
V9	6BE6	100K	135K	2080Ω	50Ω	50Ω	250K	3.3meg	0Ω	50Ω
V10	ECC83 (12AX7)	270K	270K	150Ω	50Ω	50Ω	NC	330Ω	NC	1500Ω
V11	ECC83 (12AX7)	100K	135K	2080Ω	50Ω	50Ω	250K	3.3meg	0Ω	50Ω
V12	7189	270K	270K	150Ω	50Ω	50Ω	NC	330Ω	NC	1500Ω
V13	5U4GB	NC	1	NC	350	NC	360	NC	1	

ALL MEASUREMENTS TAKEN ON "FM" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
* MEASURED IN "AM" POSITION.
▪ MEASURED IN "AFC" POSITION.
▲ MEASURED FROM PIN 8 OF V1.

NC NO CONNECTION
TP TIE POINT

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

HOFFMAN MODELS B8007, M8007, SP8007, W8007 (Ch. 1130)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Suggested alignment tools: A1 thru A4, A8 thru A13... GENERAL CEMENT #5097, 8727 WALSCO #2515 A5, A14, A17..... GENERAL CEMENT #8721, 8722 WALSCO #2519 A6, A7, A18, A19..... GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520 A15, A16..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01 mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully open.	AC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	High side thru 150 mmf to AM antenna terminal. Low side to chassis.	600KC	600KC	"	A5	"
3.	"	1620KC	Tuning gang fully open.	"	A6	"
4.	"	1400KC	Tune to 1400KC signal.	"	A7	Adjust for maximum deflection while rocking tuning gang. Repeat Steps 2, 3 and 4.

FM IF ALIGNMENT USING SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .01 mfd to point Ⓑ. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point Ⓒ. Common to chassis.	A8, A9, A10, A11, A12	Adjust for maximum deflection.
6.	"	"	"	DC probe to point Ⓓ. Common to chassis.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

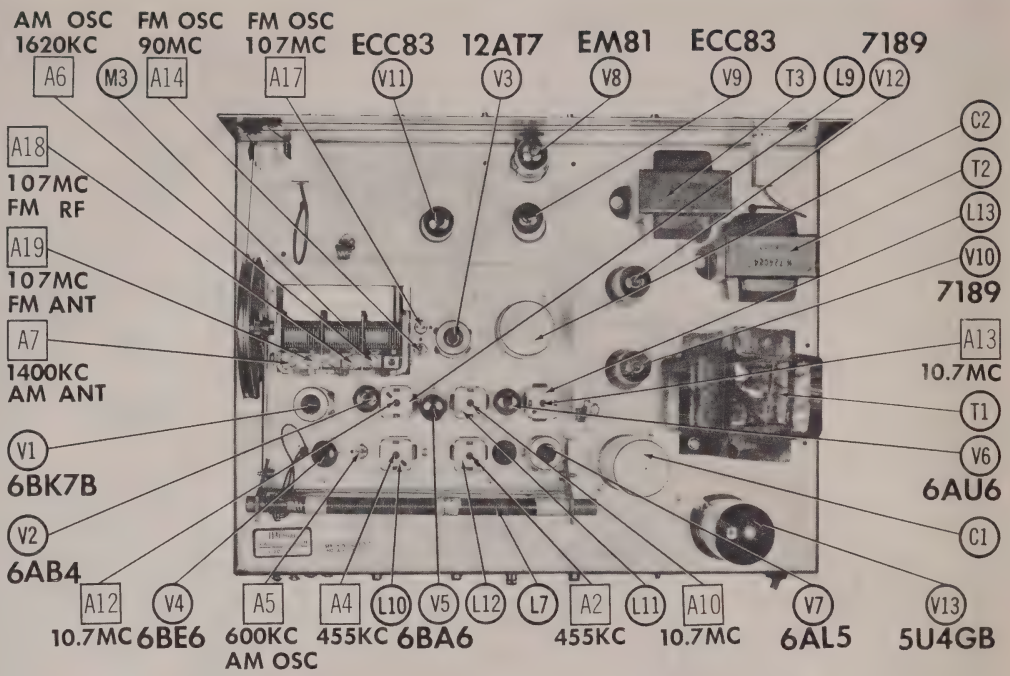
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru .01 mfd to point Ⓑ. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point Ⓒ. Low side to chassis.	A8, A9, A10, A11, A12	Disconnect Stabilizing capacitor C3. Adjust for maximum gain and symmetry of response similar to Fig. 1. Reconnect C3.
6.	"	"	"	Vert. amp. to point Ⓓ. Low side to chassis.	A13	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

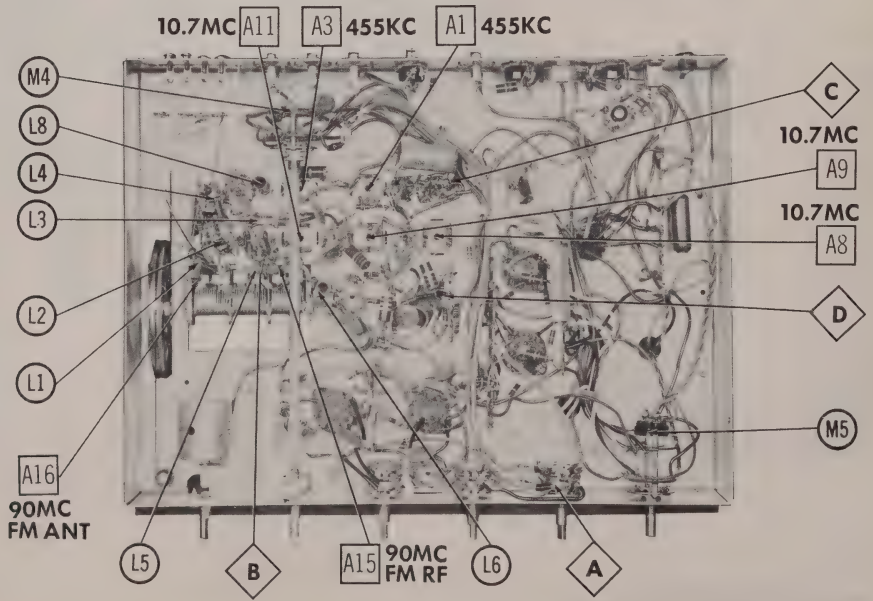
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 120Ω in each lead.	90MC (Unmod.)	(FM) 90MC	DC probe to point Ⓒ. Common to chassis.	A14, A15, A16	Adjust for maximum deflection.
8.	"	107MC	107MC	"	A17, A18, A19	"

FIG. 1

FIG. 2



CHASSIS — TOP VIEW



CHASSIS BOTTOM VIEW — ALIGNMENT, INDUCTOR & MISC. IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (CBS • GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	FM RF Amplifier	6BK7B
V2	FM Mixer	6AB8
V3	FM AFC-Osc.	12AT7
V4	AM Converter	6BE6
V5	1st FM-AM IF Amp.	6BA6
V6	2nd FM IF Amp. AM Det. -AVC	6AU6
V7	Ratio Detector	6AL5
V8	Tuning Indicator	EM81/6DA5
V9	Left Channel AF Amp.	ECC83/12AX7 (7025)*
V10	Left Channel Output	7189 (EL84/6BQ5)*
V11	Right Channel AF Amp.	ECC83/12AX7 (7025)*
V12	Right Channel Output	7189 (EL84/6BQ5)*
V13	Rectifier	5U4GB

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA HOFFMAN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲80	400	856705	AFHS2-45-50	BO356	FP229.3	TMD-59	TVL-2677	
B	▲80	400							
C2A	▲30	350	856703	AFH2-40	BO320		TMD-39	TVL-2630	
B	▲50	25							
C3	8	150	856014	PRS1405	BBR8-150	TC41	TD-8-150	TVA-1405	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C5	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C6	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C7	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C8	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C9	1-8	#872006						
C10	33 N750		N750-DI 33	DTN-33	C10Q33U	CCTN-330	CN7-433	10TCU-Q33
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103 *	GP110	5HK-S10 10TCP-T10
C12	100 N150	#851128						
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C14	12 N750 ± .5mmf			TCN-12	C10Q12U		CN7-412	10TCU-Q12
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C16	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C17	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C18	390 5%		1469-00039		5R5T39	CM-193-391J *	MCE243	MS-339
C19	12 N1500 ± .5mmf	#850304						
C20	47000		BPD-05	DD-503	CUB6S47	6DP-3-473	GP150	5HK-S50
C21	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C22	1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C26	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C28	270		DI-270	DD-271	L10T27	CCD-271	GP327	10TS-T27
C29	270		DI-270	DD-271	L10T27	CCD-271	GP327	10TS-T27
C30	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C31	270		DI-270	DD-271	L10T27	CCD-271	GP327	10TS-T27
C32	680		DI-680	DD-681	BYA10T68	CCD-681	GP368	10TS-T68
C33	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C34	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C35	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103 *	GP110	5HK-S10 10TCP-T10
C37	100 N150	#851128						
C38	470		DI-470	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C39	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C40	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C41	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33
C42	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C43	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33
C44	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C45	1500 1500V		HVD-15-1500	DD30-152	HVB20D15	16DP-1-152	ZHY-215	30GA-D15
C46	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C47	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C48	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33
C49	100 N150	#851128				*		10TCP-T10
C50	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C51	470		DI-470	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C52	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C53	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C54	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33
C55	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C56	3300		BPD-0033	DD-332	BYA10D33	CCD-332	GP233	5HK-D33
C57	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C58	1500 1500V		HVD-15-1500	DD30-152	HVB20D15	16DP-1-152	2HY-215	30GA-D15
C59	1mfd 100V		P288N-1.0		CUB2W1		GEM-21	2TM-M1
C60	1mfd 100V		P288N-1.0		CUB2W1		GEM-21	2TM-M1
C61	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C62	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10

Hoffman Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA HOFFMAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg 500K Tap	½	802030					Loudness, Right Channel
B	1meg 500K Tap	½						Loudness, Left Channel
R2A	1meg	1-10%	802031	F1-52		† QJ-1118R	■UE3963	Bass, Right Channel
B	1meg			R2-52				Bass, Left Channel
R3A	400K		802032			‡ QJ-1254R		Treble, Right Channel
B	400K							Treble, Left Channel
R4A	250Ω		800014	AB-2		B11-201	R250L	Hum Balance
B	Shaft			AK-1		SK2	Not Req.	

■ "STA-LOC" equivalent: FA16A, RU16A, OS687, IS1062.
† "Concentrikit" equivalent: K-2 Kit with base elements 2 shafts: B13-137, P1-024, (Panel). Not available as a factory assembled unit. B13-137, R1-105 (Rear).
‡ "Concentrikit" equivalent: K-2 Kit with base elements & shafts: B13-132, P1-024 (Panel). B13-132, R1-105 (Rear).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	470K	
R6	56Ω	
R7	470K	
R8	220K	
R9	2.2meg	
R10	22Ω	
R11	33K	
R12	1000Ω	
R13	220Ω	
R14	220K	
R15	10K	
R16	47K 2W	
R17	470Ω	
R18	22K	
R19	47Ω	
R20	470K	
R21	22K	
R22	8200Ω 2W	
R23	8200Ω 2W	
R24	68Ω	
R25	470K	
R26	390K	
R27	120K	
R28	2.2meg	
R29	8200Ω 2W	
R30	390Ω	
R31	6800Ω	
R32	5100Ω	
R33	1800Ω	
R34	100K	
R35	2.2meg	
R36	270K	
R37	470K	
R38	33K	
R39	3.3meg	
R40	33K	
R41	470K	
R42	120K	
R43	100K	
R44	3900Ω	
R45	1000Ω	
R46	330K	
R47	220Ω	
R48	150Ω 1W	
R49	100Ω 1W	
R50	33K	
R51	3.3meg	
R52	33K	
R53	220K	
R54	220K	
R55	470K	
R56	120K	
R57	100K	
R58	3900Ω	
R59	1000Ω	
R60	330K	
R61	220Ω	
R62	150Ω 2W	
R63	100Ω 10W	#825377
R64	1200Ω 10W	#825429
R65	270K	
R66	390K	

Hoffman Part Number.

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		HOFFMAN PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Trans.	776003						
L2	RF Choke	750008	19-1000	19-1000	BC-561	4602		1. luh
L3	RF Choke	750009				4609		5. 6uh ①
L4	Fil. Choke	750007	19-1000	19-1000	BC-561	4602		1. luh
L5	FM RF Coil	776001						
L6	FM Osc. Coil	768009						
L7	Loopstick	924002						
L8	AM Osc. Coil	768010						
L9	1st FM IF Trans.	760012	16-3487	16-3487	FM-254	1463		
L10	1st AM IF Trans.	760011	16-6758	16-6758	BC-352	12-C1	RF-1	
L11	2nd FM IF Trans.	760013	16-3487	16-3487	FM-254	1463		
L12	2nd AM IF Trans.	760011	16-6758	16-6758	BC-353	12-C2	RF-2	
L13	Ratio Det.	774004	17-3498	17-3498	FM-255	1465		

① IRC Part # CL1.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	HOFFMAN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .95A	550 VCT @ .130A	5V @ 3A	716019						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 2.5A	6.3V @ 2.6A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	HOFFMAN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4500Ω	8Ω Tap @ 4Ω	724023							
T3	4500Ω	8Ω Tap @ 4Ω	724024	24S90				24S90		

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	HOFFMAN PART No.	QUAM PART No.	
SP1	12"	PM	12-14Ω	708814	12A1Z12. 4	① Some versions may use a part #708203 in this application.
SP2	5 1/4"	PM	14-16Ω	708203-1①	52A1Z15. 9	
SP3	12"	PM	12-14Ω	708814	12A1Z12. 4	
SP4	5 1/4"	PM	14-16Ω	708203-1①	52A1Z15. 9	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								
	HOFFMAN PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1	981007 ①	13T	Not Req.	13	Not Req.	A-44X	Not Req.	10T2-S	Not Req.

① Includes needles.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	HOFFMAN PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M2	(Part of M1)	W-204DS ♦† or W-204DD-1 ♦	* A-44X † or * A-44XSD †♦ or * A-44XDD ♦	† Jewel ♦ Diamond * Includes cartridge

MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
M3	Tuning Cap.	872008	FM-AM, 5 Gang (AM Sections: Ant. 9–288mmf Osc. 9–294mmf)
M4	Switch	902021	Function (Rotary Wafer)
M5	Switch	902022	Speaker (Rotary Wafer)
M6	Motor		Turntable Drive

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	500051	Speaker Selector, Stereo Selector
Knob	500052	Tuning
Knob	508014	Volume, Inner
Knob	510002	Volume, Outer
Knob	508018	Bass, Treble, Inner
Knob	510003	Bass, Treble, Outer
Dial Glass	619018	
Cabinet	381034	Model M8007
Cabinet	381035	Model W8007
Cabinet	381036	Model B8007
Cabinet	381037	Model SP8007

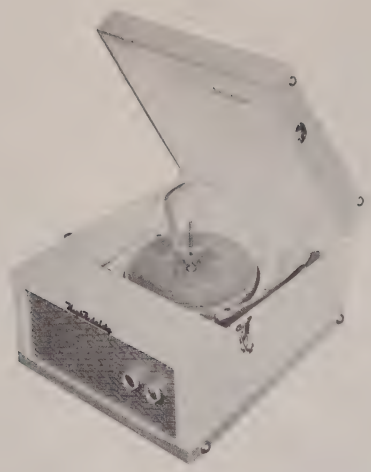
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

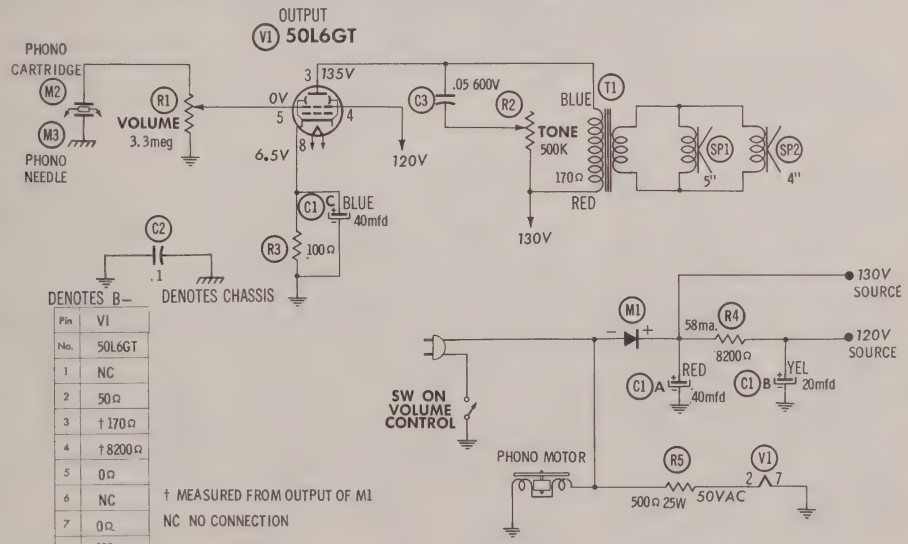
OLYMPIC MODEL C-45

OLYMPIC
MODEL C-45



TRADE NAME	Olympic Model C-45
MANUFACTURER	Olympic Radio & TV Inc., 34-01 38th Ave., Long Island City 1, N. Y.
TYPE SET	AC Operated One Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 27 Watts, .3 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR MONARCH UA8 - PHOTOFACT SET 381 FOLDER 11



Pin No.	VI
1	NC
2	50Ω
3	†170Ω
4	†8200Ω
5	0Ω
6	NC
7	0Ω
8	100Ω

† MEASURED FROM OUTPUT OF M1
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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SET 484 FOLDER 13

PARTS LIST AND DESCRIPTIONS

TUBES

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Output	50L6GT			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	150		PRS3650	BBRT44215	WT217	TDLT-4	TVA-3451	
B	20	150							
C	40	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C3	.05 600V		P288N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S5

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	3.3meg	½		B-85	A47-3meg-Z	Q13-140	U57	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	500K	½		B-59	A47-500K-S	Q11-133	U50	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	100Ω	

ITEM No.	RATING	REMARKS
R4	8200Ω	

ITEM No.	RATING	REMARKS
R5	500Ω 25W	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1600Ω	1-2Ω	24A1							

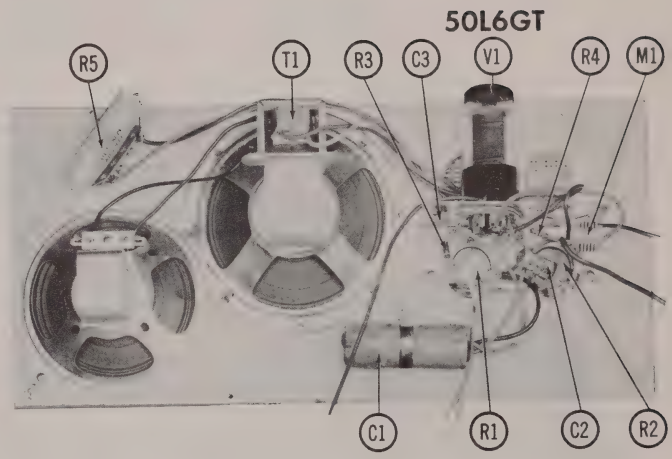
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLYMPIC PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω		5A15 *	* Parallel and Phase.
SP2	4"	PM	3-4Ω		4A07 *	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	OLYMPIC PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.058A	①	RS065 ①	1234AH ①	65 ①	SR200 ②	① Selenium Type ② Silicon Type

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA									
	OLYMPIC PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M2		420-TS-TB	Not Req.	46	Not Req.	#1	Not Req.		

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	OLYMPIC PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M3	(78RPM)	W-64S † or W-64D ♦	CRA-55 † or CRA-55D	† Jewel ♦ Diamond
	(LP)	W-64MGS † W-64MGD ♦	CRA-55LP † or CRA-55LPD ♦	

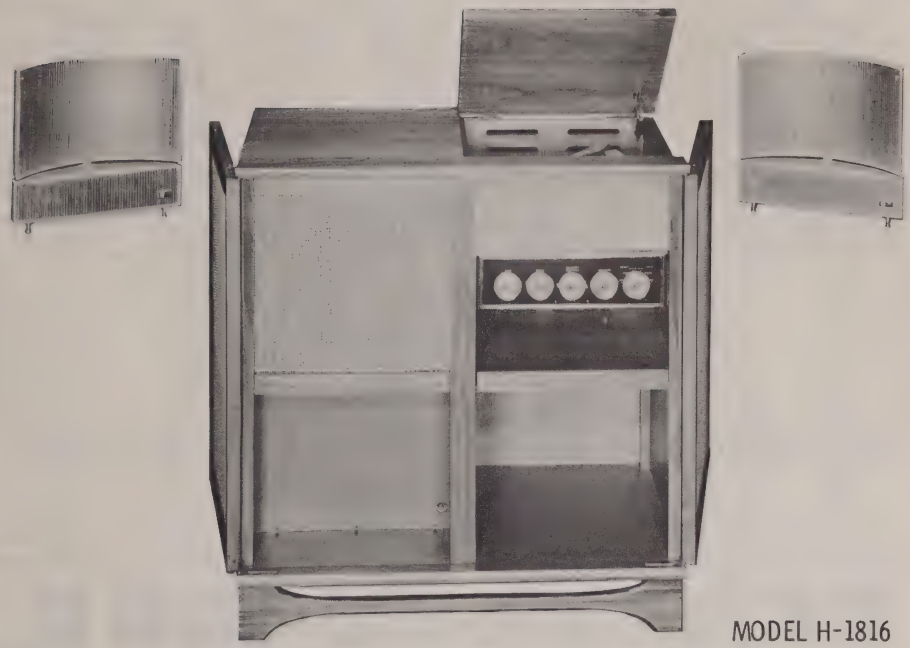
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

PHILCO MODELS H-1814, H-1816, H-1916

PHILCO MODELS
H-1814, H-1816, H-1916



MODEL H-1816

PHILCO MODELS
H-1814, H-1816, H-1916

TRADE NAME	Philco Models H-1814, H-1816, H-1916
MANUFACTURER	Philco Corp., Tioga & "C" Streets, Philadelphia, Pa.
TYPE SET	AC Operated 9 Tube Stereo Amplifier with 4 Speed Automatic Record Changer
POWER SUPPLY	105-120 Volts AC, 60 Cycles RATING 120 Watts, 1 Amp. @ 117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON PHILCO RECORD CHANGER M-45 (PART #35-1559) - SEE SIMILAR GLASER-STEERS GS-77 - PHOTOFACT SET 399 FOLDER 7.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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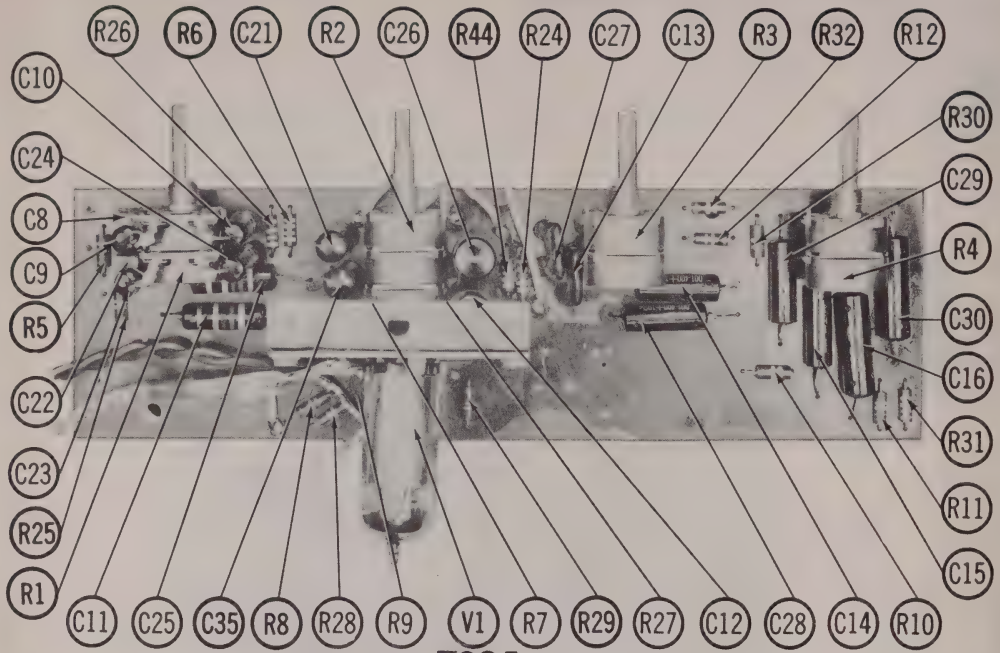
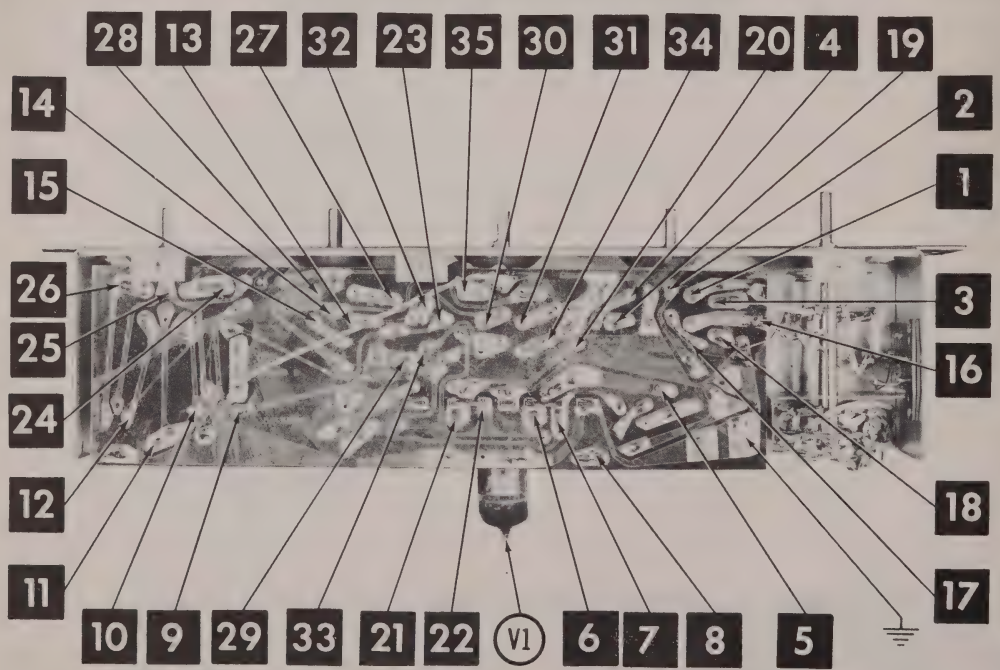
JT683

SET484 FOLDER 14



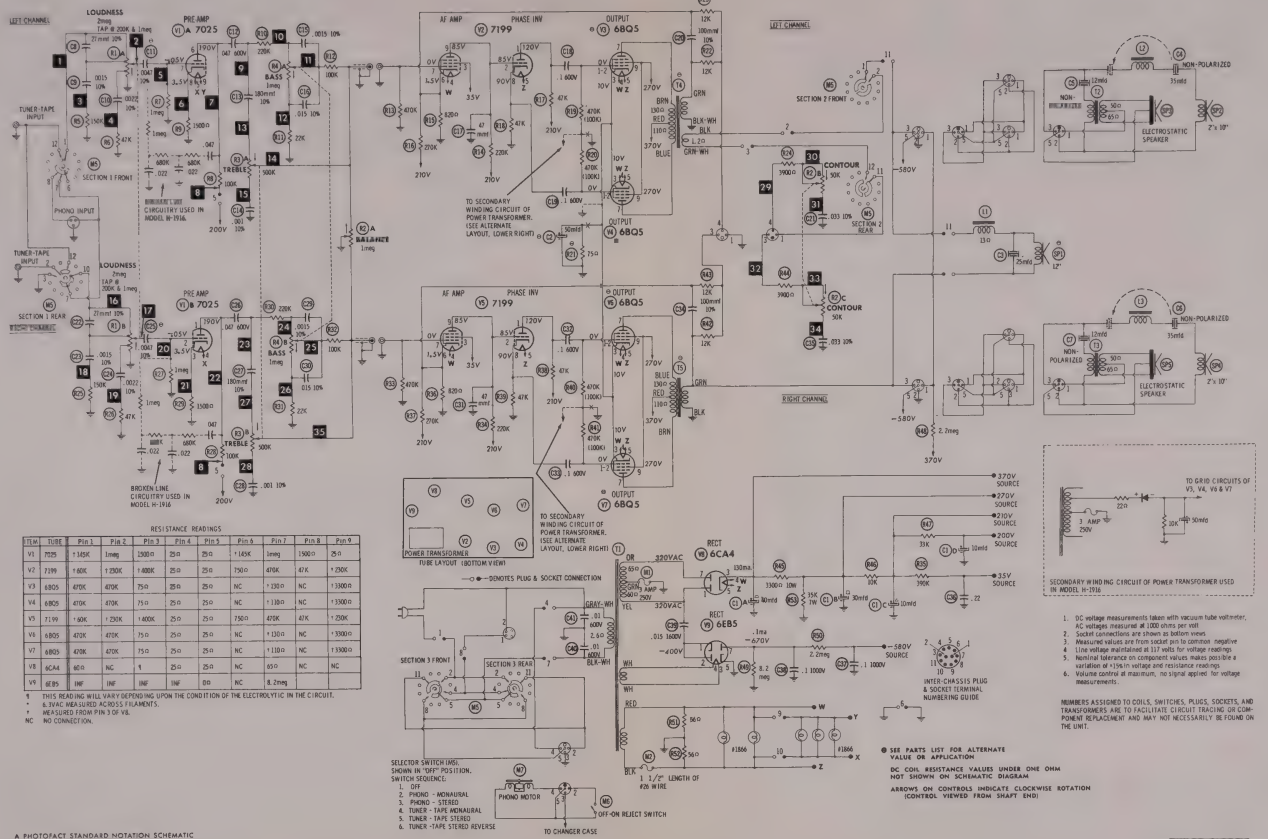
7025

PREAMP. CHASSIS – TOP VIEW



A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD – PREAMP. CHASSIS



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	7025	†.145K	1meg	1500Ω	25Ω	25Ω	†.145K	1meg	1500Ω	25Ω
V2	7199	†60K	†230K	†400K	25Ω	25Ω	750Ω	470K	47K	†250K
V3	6BQ5	470K	470K	470K	75Ω	25Ω	25Ω	NC	†330Ω	NC
V4	6BQ5	470K	470K	470K	75Ω	25Ω	25Ω	NC	†130Ω	NC
V5	7199	†60K	†230K	†400K	25Ω	25Ω	750Ω	470K	47K	†250K
V6	6BQ5	470K	470K	470K	75Ω	25Ω	25Ω	NC	†330Ω	NC
V7	6BQ5	470K	470K	470K	75Ω	25Ω	25Ω	NC	†130Ω	NC
V8	6CA4	60Ω	NC	¶	25Ω	25Ω	25Ω	NC	65Ω	NC
V9	6EB5	INF	INF	INF	INF	INF	0Ω	NC	8.2meg	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
* 6.3VAC MEASURED ACROSS FILAMENTS.
† MEASURED FROM PIN 3 OF V8.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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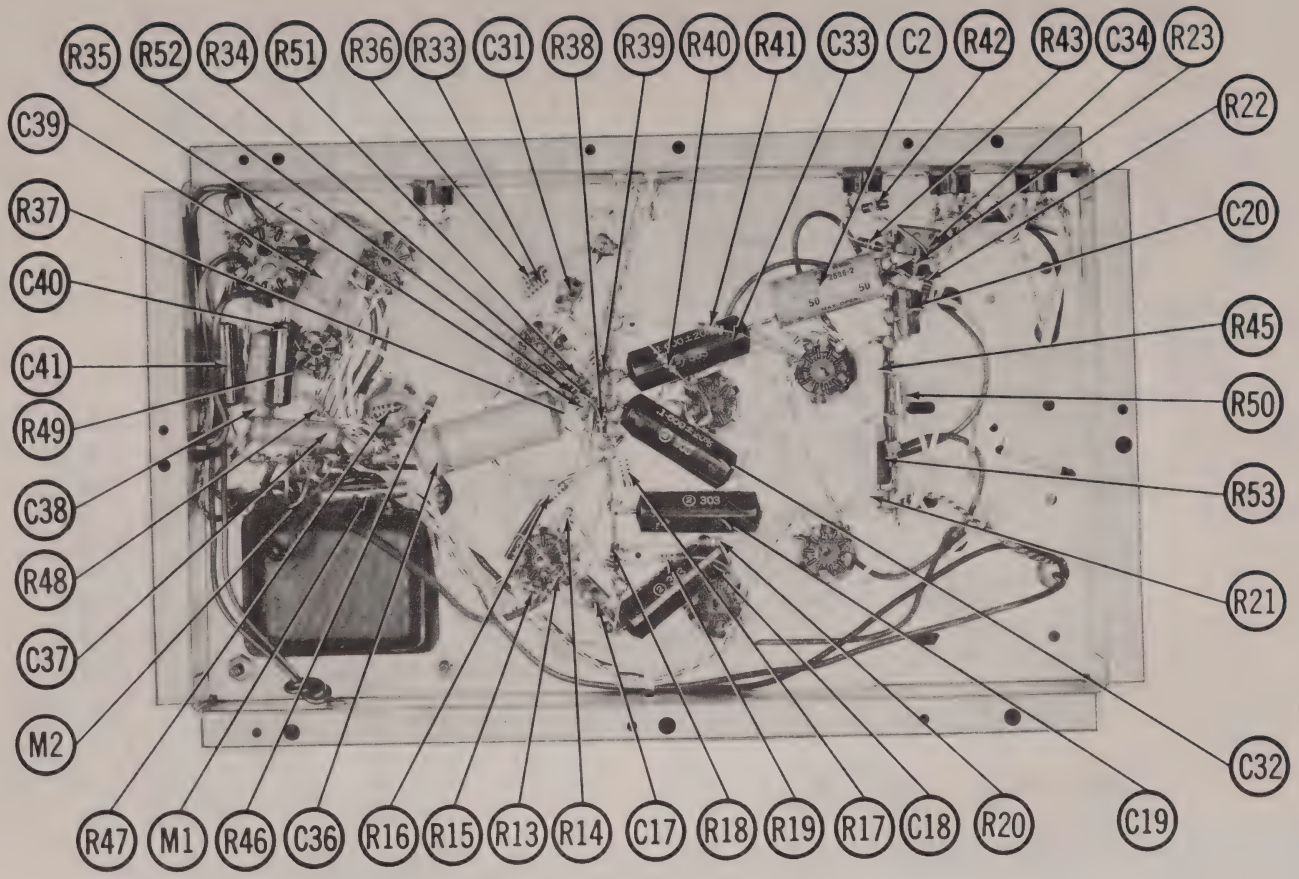
PHILCO MODELS H-1814, H-1816, H-1916



AMP. CHASSIS – BOTTOM VIEW

H-1814

PHILCO MODEL

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	Left Channel Preamp. - Right Channel Preamp.	7025
V2	Left Channel AF Amp. - Phase Inv.	7199
V3	Left Channel Output	6BQ5 (7189) *
V4	Left Channel Output	6BQ5 (7189) *
V5	Right Channel AF Amp. - Phase Inv.	7199
V6	Right Channel Output	6BQ5 (7189) *
V7	Right Channel Output	6BQ5 (7189) *
V8	Rectifier	6CA4
V9	Rectifier	6EB5

* Used in Model H-1916.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	30-2590-39	AFH4-18-10	D0171	FP446	TMT-37 TD-10-450	TVL-4771.8	
B	■30	450							
C	▲10	450							
D	10	450							
C2	50	50	30-2596-2	PRS1350	BR505	TC39	TD-50-50	TVA-1308	Note 1
C3	25	25AC	30-2593-2	PRS7350	BBR50-25 †	TC39 †		TVAS-1205.1*	
C4	35	25NP	30-2593-6	NP-PRS7450	BBR100-25†	TC492 †		TVAS-1205.5*	
C5	12	25NP	30-2593-3	NP-PRS7315	BR25-25 †	TCN5010		TVAS-1204.3*	
C6	35	25NP	30-2593-6	NP-PRS7450	BBR100-25†	TC492 †		TVAS-1205.5*	
C7	12	25NP	30-2593-3	NP-PRS7315	BBR25-25 †	TCN5010		TVAS-1204.3*	

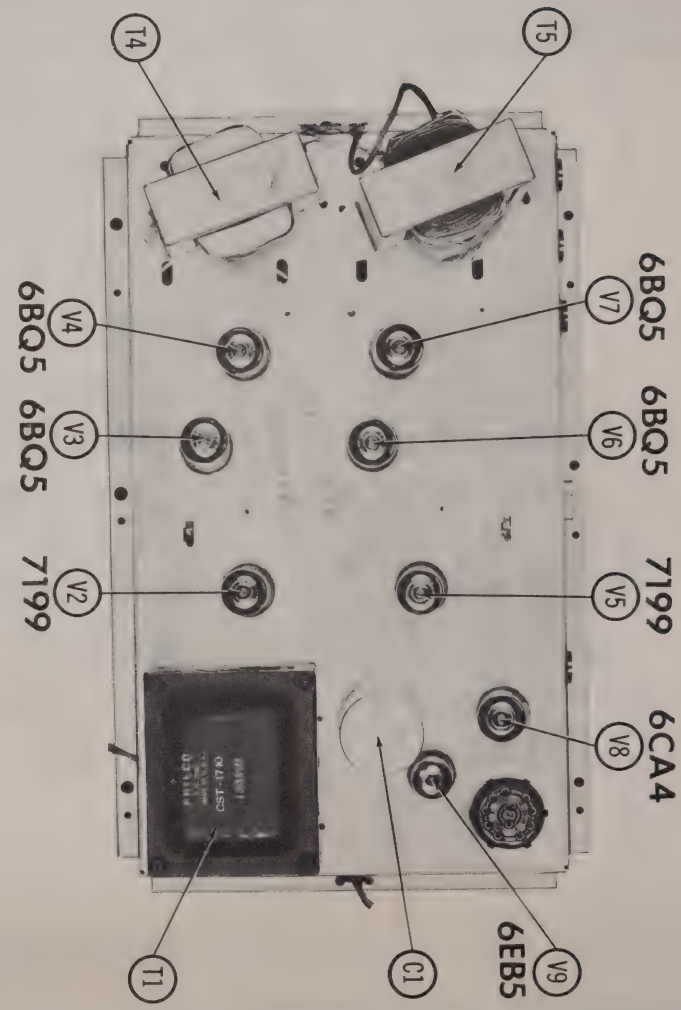
† Use 2 units. Connect negative terminals together. Connect positive terminals into circuit the same as the original non-polarized unit.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Not used in Model H-1916.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C8	27 10%		1469-000027	TCZ-27	22R5Q27	CM-19B-270K	CNO-427	MS-427
C9	.0015 400V 10%		V84C4D15-10%	DD-152	PM6D15	6DP-1-152	GP215	6TM-D15
C10	.0022 400V 10%		V84C4D22-10%		PM6D22	6DP-1-222	GP222	6TM-D22
C11	.0047 400V 10%	Note 1	V84C4D47-10%		PM6D47	6DP-1-472	JL-247	6TM-D47
C12	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C13	180 10%		1469-00018	TCZ-180	22R5T18	CM-19B-181K	CNO-318	MS-318
C14	.001 400V 10%		V84C6D1-10%	DD-102	PM6D1	6DP-1-102	GP210	6TM-D1
C15	.0015 400V 10%		V84C4D15-10%	DD-152	PM6D15	6DP-1-152	GP215	6TM-D15
C16	.015 400V 10%		V84C4S15-10%		PM6S15	4DP-1-153		4TM-S15
C17	47		1468-000047	TCZ-47	5W5Q47	CM-19B-470M	CNO-447	MS-447
C18	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C19	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C20	100 10%		1468-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-310
C21	.033 400V 10%		V84C4S33-10%		PM4S33	4DP-2-333	GEM-1613	6TM-S33
C22	27 10%		1469-000027	TCZ-27	22R5Q27	CM-19B-270K	CNO-427	MS-427
C23	.0015 400V 10%		V84C4D15-10%	DD-152	PM6D15	6DP-1-152	GP215	6TM-D15
C24	.0022 400V 10%		V84C4D22-10%		PM6D22	6DP-1-222	GP222	6TM-D22
C25	.0047 400V 10%		V84C4D47-10%		PM6D47	6DP-1-472	JL-247	6TM-D47
C26	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C27	180 10%		1469-00018	TCZ-180	22R5T18	CM-19B-181K	CNO-318	MS-318
C28	.001 400V 10%		V84C6D1-10%	DD-102	PM6D1	6DP-1-102	GP210	6TM-D10
C29	.0015 400V 10%		V84C4D15-10%	DD-152	PM6D15	6DP-1-152	GP215	6TM-D15
C30	.015 400V 10%		V84C4S15-10%		PM4S15	4DP-1-153		4TM-S15
C31	47		1468-000047	TCZ-47	22R5Q47	CM-19B-470M	CNO-447	MS-447
C32	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C33	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P1
C34	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-310

AMP CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C35	.033 400V 10%		V84C4S33-10%		PM4S33	4DP-2-333	GEM-1613	4TM-S33
C36	.22 400V		P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C37	.1 1000V		P1088N-1		CUB10P1			10TM-P1
C38	.1 1000V		P1088N-1		CUB10P1			10TM-P1
C39	.015 1600V		P1684CM-S15	DD16-153	CUB16S15	16DP-4-153		MB-S15
C40	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S1
C41	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S1

Note 1. Model H-1916 uses .01mfd in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg *		33-5599-3					Loudness, Left Channel
B	2meg *							Loudness, Right Channel
R2A	1meg		33-5599-4					Balance
B	50K							Contour, Left Channel
C	50K							Contour, Right Channel
R3A	500K		33-5599-1					Treble, Right Channel
B	500K							Treble, Left Channel
R4A	1meg		33-5599-2					Bass, Right Channel
B	1meg							Bass, Left Channel

* Taps ② 200K and 1meg.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	150K	
R6	47K	
R7	1meg	
R8	100K	
R9	1500Ω	
R10	220K	
R11	22K	
R12	100K	
R13	470K	
R14	220K	
R15	820Ω	
R16	270K	
R17	47K	
R18	47K	
R19	470K	(100K) *
R20	470K	(100K) *
R21	75Ω 10W	#33-1335-150 ①

ITEM No.	RATING	REMARKS
R22	12K	
R23	12K	
R24	3900Ω	
R25	150K	
R26	47K	
R27	1meg	
R28	100K	
R29	1500Ω	
R30	220K	
R31	22K	
R32	100K	
R33	470K	
R34	220K	
R35	390K	
R36	820Ω	
R37	270K	
R38	47K	

ITEM No.	RATING	REMARKS
R39	47K	
R40	470K	(100K) *
R41	470K	(100K) *
R42	12K	
R43	12K	
R44	3900Ω	
R45	3300Ω 10W	#33-1363-30
R46	10K	
R47	33K	
R48	2. 2meg	
R49	8. 2meg	
R50	2. 2meg	
R51	56Ω	
R52	56Ω	
R53	35K 7W	

① Not used in Model H-1916. # Philco Part No. * Used in Model H-1916.

CROSSOVER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	PHILCO PART No	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L1		13Ω	10MH	32-8923-1						
L2		.2Ω	1MH	32-8774-1						
L3		.2Ω	1MH	32-8774-1						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ② 1A	640VCT ②.130A	6.3V ② .3A	32-8932-2						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V ② 4.8A									

TRANSFORMER (IMP. MATCH.)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	1	2	32-8895-1						
T3	1	2	32-8895-1						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC. 1	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	5700Ω CT	6-8Ω	32-8930-1 ①							
		SEC. 2 115Ω								
		SEC. 1								
T5	5100Ω CT	6-8Ω	32-8930-2 ②							

① Part #32-8931-2 used in Model H-1916. ② Part #32-8931-1 used in Model H-1916.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω	36-1678-2 ①	12A31PA	① Two speakers (Part #36-1687-1, 36-1687-2) connected in series for Model H-1916.
SP2	2" x 10"	PM		326-0007		
SP3	Electrostatic			36-1674-1		
SP4	2" x 10"	PM		326-0007		
SP5	Electrostatic			36-1674-1		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			PHILCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	MDV	3A 250V S/B P/T	45-2656-64		315003 (3A 250V S/B P/T)		MDV3	
M2	1½" Length of #26 wire							

PARTS LIST AND DESCRIPTIONS (Continued)

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							
	PHILCO PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M3		13TB	Not Req.	26S	Not Req.			10T2-S	N-10T2-S

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	PHILCO PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M4		W-101STS † or W-101STD ♦	E98 † or E98D ♦	† Jewel ♦ Diamond
		W-102MGS † or W-102MGD ♦	E98X † or E98XD ♦	

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M5	Switch	42-2112-1	
M6	Switch		Off-On-Reject (Part of Changer)
M7	Motor		Phono Drive (Part of Changer)
	Printed Board	54-5565	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	28-11588-4	Loudness, Treble, Bass, Function
Knob	28-11588-5	Contour
Knob	54-5617-1	Balance

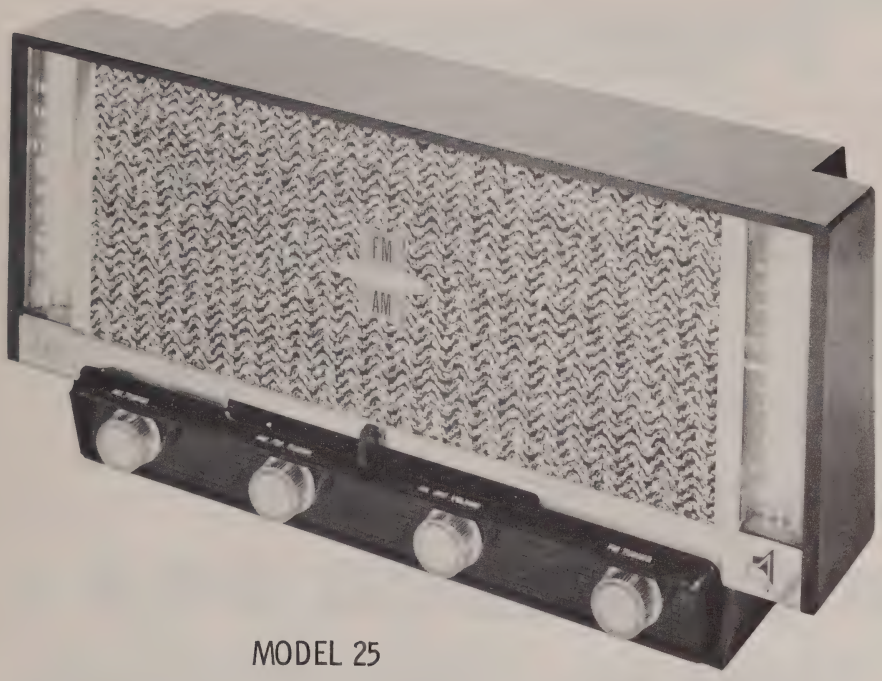
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

SILVERTONE MODELS
25, 26 (Ch. 132.48400)

SILVERTONE MODELS
25, 26 (Ch. 132.48400)



MODEL 25

SILVERTONE MODELS
25, 26 (Ch. 132.48400)

TRADE NAME	Silvertone Models 25, 26 (Ch. 132.48400)		
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois		
TYPE SET	AC-DC Operated 6 Tube FM-AM Receiver		
POWER SUPPLY	110-120 Volts AC, DC	RATING	37 Watts, .36 Amp. @ 117 Volts AC
TUNING RANGE	BROADCAST 540-1670KC	FREQ. MOD.	88-108MC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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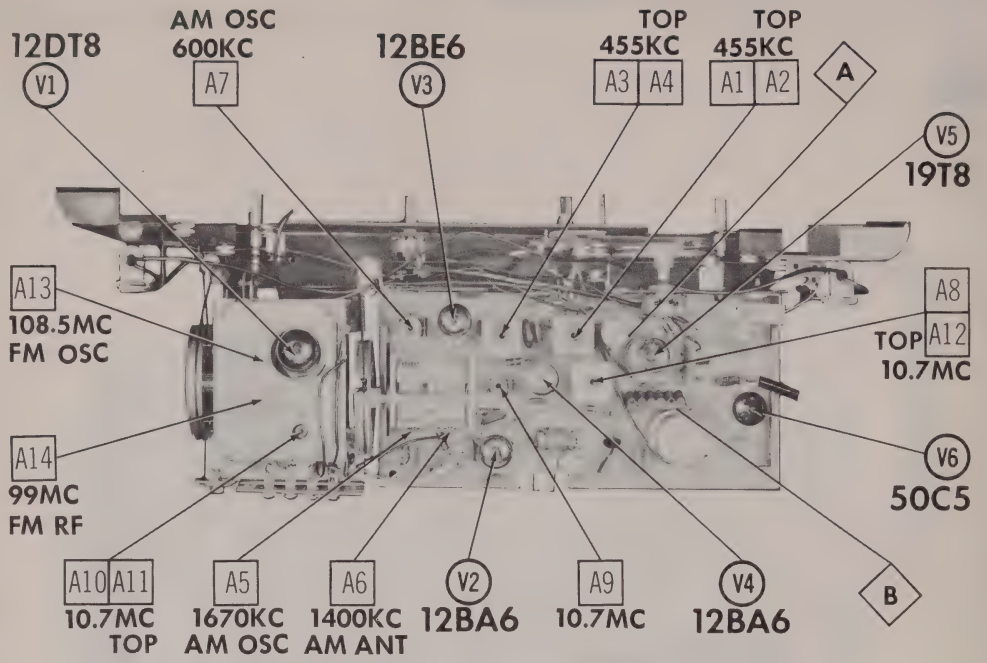
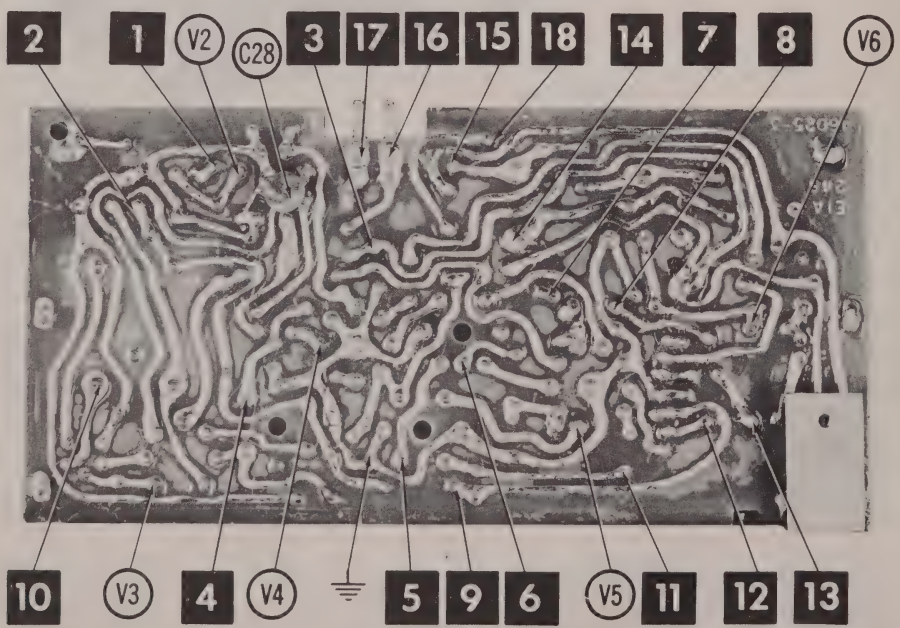
JK734

SET 484 FOLDER 15



CHASSIS TOP VIEW - TUBE AND ALIGN. IDENT.



A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1 thru A4, A7, A8, A9, A12 ...	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
A5, A6	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A10, A11	GENERAL CEMENT #8282, 8606, 8606-L, 9091 WALSCO #2526, 2541, 2542, 2543, 2544
A13, A14	GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291 WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

AM ALIGNMENT - SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .05mfd to pin 7 (grid) of AM Conv. Low side to chassis.	455KC (400~ Mod.)	(AM) Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	1670KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	Tune to 1400KC signal	"	A6	"
4.	"	600KC	Tune to 600KC signal	"	A7	Adjust for maximum output while rocking tuning gang.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM - SELECTOR IN FM POSITION

Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	Remove shorting bars from FM antenna terminals and connect generator leads across center terminals.	10.7MC (Unmod.)	(FM) Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A8, A9, A10, A11	Adjust for maximum deflection.
6.	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE - SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	Disconnect shorting bars from FM antenna terminals and connect generator across center terminals.	10.7MC (450KC swp)	(FM) Point of non-interference	Vert. Amp. to point Ⓐ. Low side to chassis.	A8, A9, A10, A11	Disconnect Stabilizing Capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1. Reconnect C2.
6.	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A12	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT - SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across center terminals of FM antenna strip with 120Ω in each lead. (Disconnect shorting bars).	108.5MC (Unmod.)	(FM) High frequency end stop	DC probe to point Ⓐ. Common to chassis.	A13	Adjust for maximum deflection.
8.	"	99MC	99MC	"	Idler tension screw	Adjust for tracking.
9.	"	"	"	"	A14	Adjust for maximum deflection.

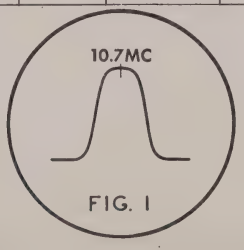


FIG. 1

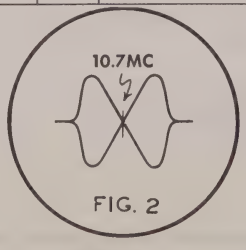
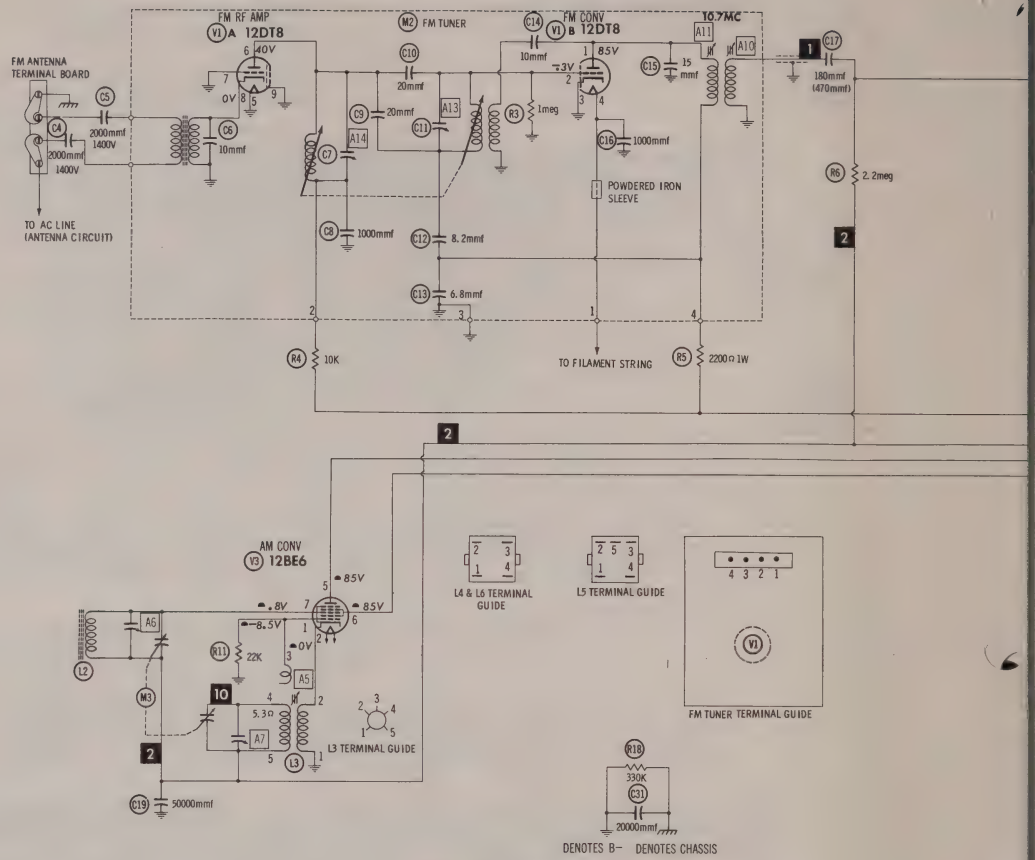


FIG. 2



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12DT8	†3200Ω	1meg	0Ω	12Ω	0Ω	†11K	0Ω	0Ω	0Ω
V2	12BA6	3.2meg	0Ω	55Ω	43Ω	†1300Ω	†1300Ω	0Ω		
V3	12BE6	≃22K	≃.5Ω	43Ω	31Ω	≃†1300Ω	≃†1300Ω	≃1.5meg		
V4	12BA6	1meg	0Ω	55Ω	67Ω	†1300Ω	†1300Ω	82Ω		
V5	19T8	62K	15K	540K	31Ω	12Ω	540K	0Ω	6.8meg	†470K
V6	50C5	150Ω	470K	67Ω	115Ω	470K	†1000Ω	†180Ω		

ALL MEASUREMENTS TAKEN IN THE "FM" POSITION UNLESS OTHERWISE DESIGNATED.
≃ MEASURED IN "AM" POSITION.
† MEASURED FROM OUTPUT OF M1

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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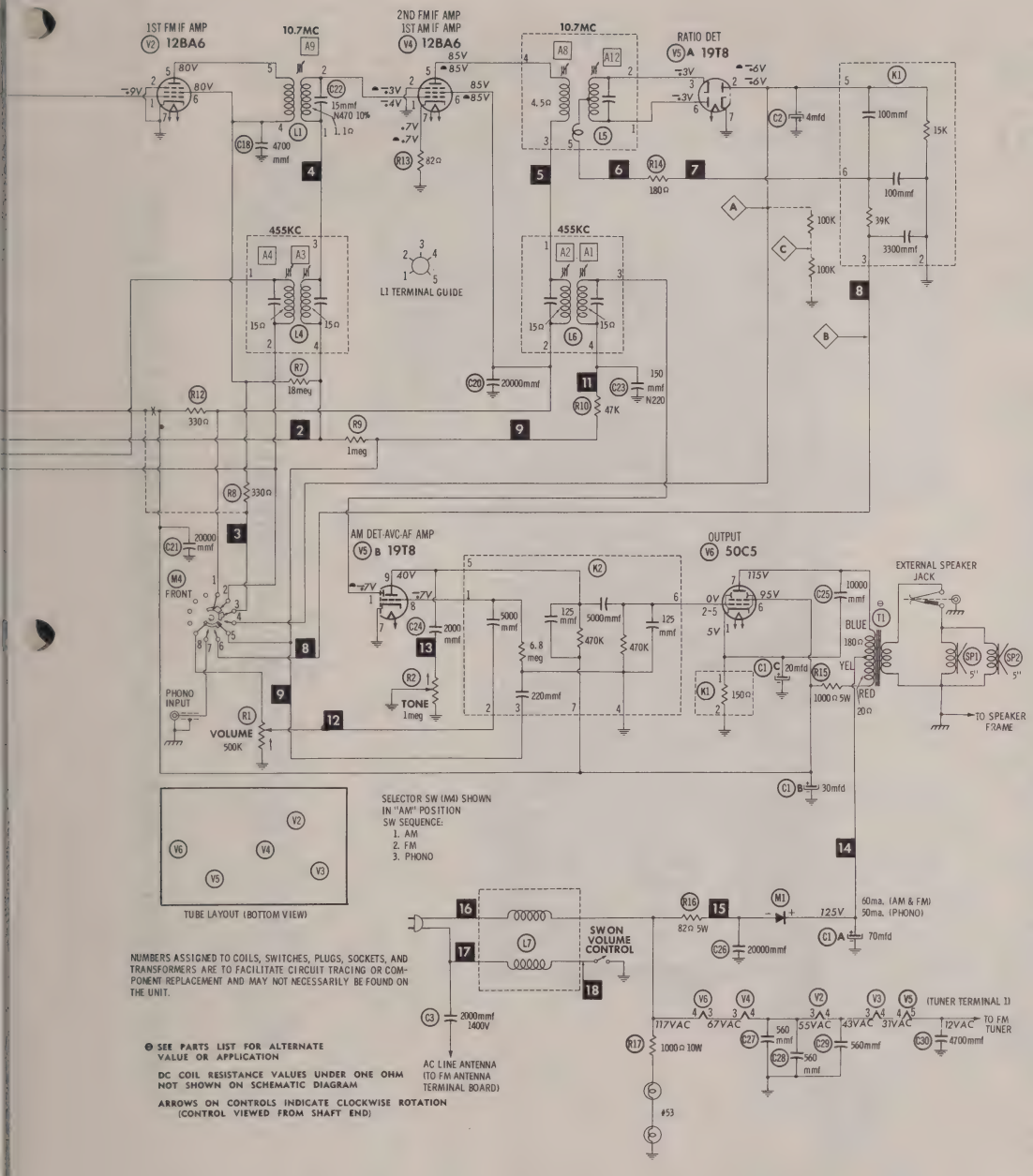


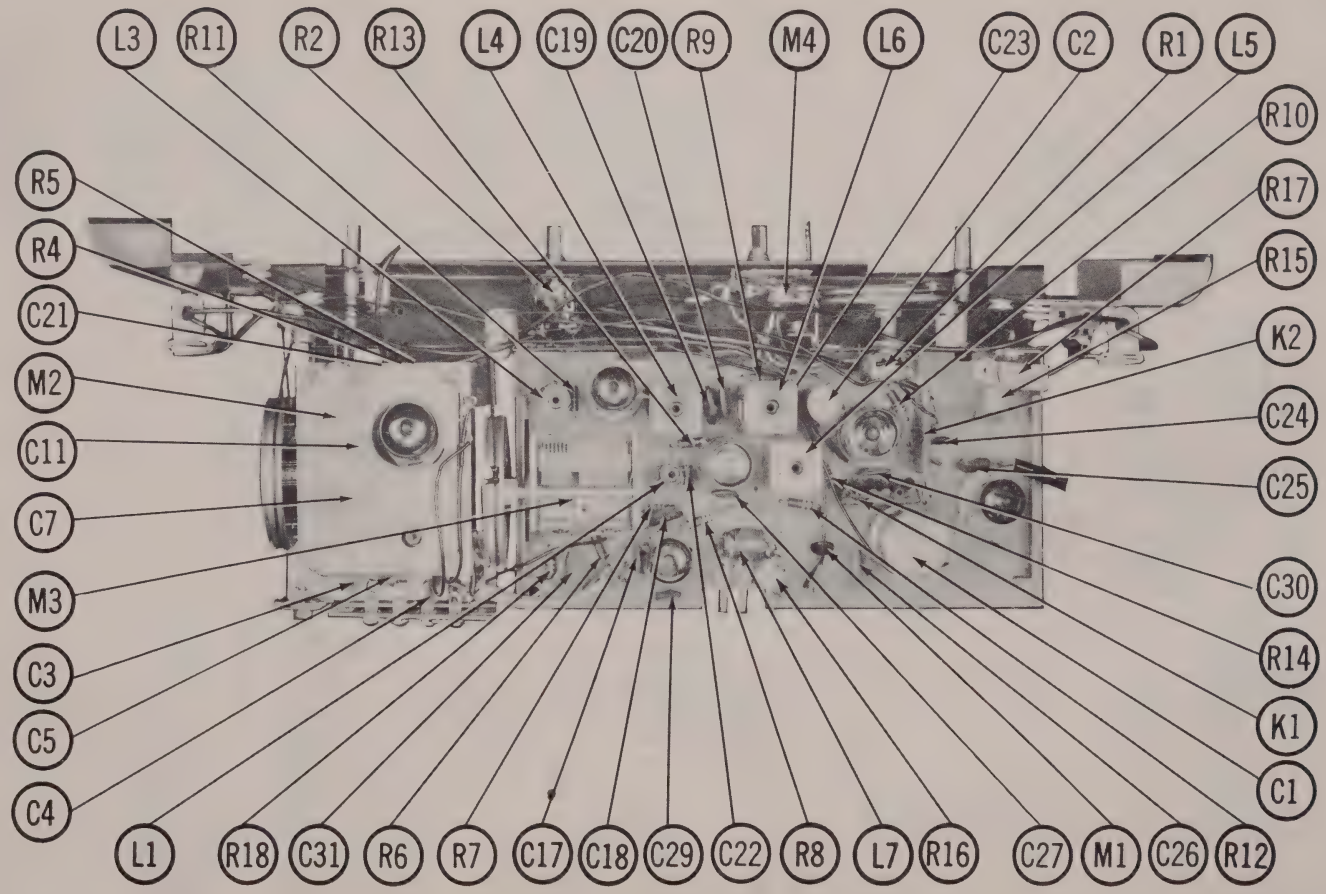
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

SILVERTONE MODELS
25, 26 (Ch. 132.48400)



CHASSIS TOP VIEW - CAPACITOR, INDUCTOR, RESISTOR & MISC. IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. - FM Conv.	12DT8	V4	2nd FM-1st AM IF Amp.	12BA6
V2	1st FM IF Amplifier	12BA6	V5	Ratio Detector - AM Det. - AVC - AF Amplifier	19T8
V3	AM Converter	12BE6	V6	Output	50C5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	70	150	43711-4	PWH3-81-50	BBRT8415C	PFP311.12	TDLT-15	TVA-3430	
B	30	150							
C	20	25							
C2	4	50	45238-1	BCD50004	ECPB804	TT80X4		TE-1302.1	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

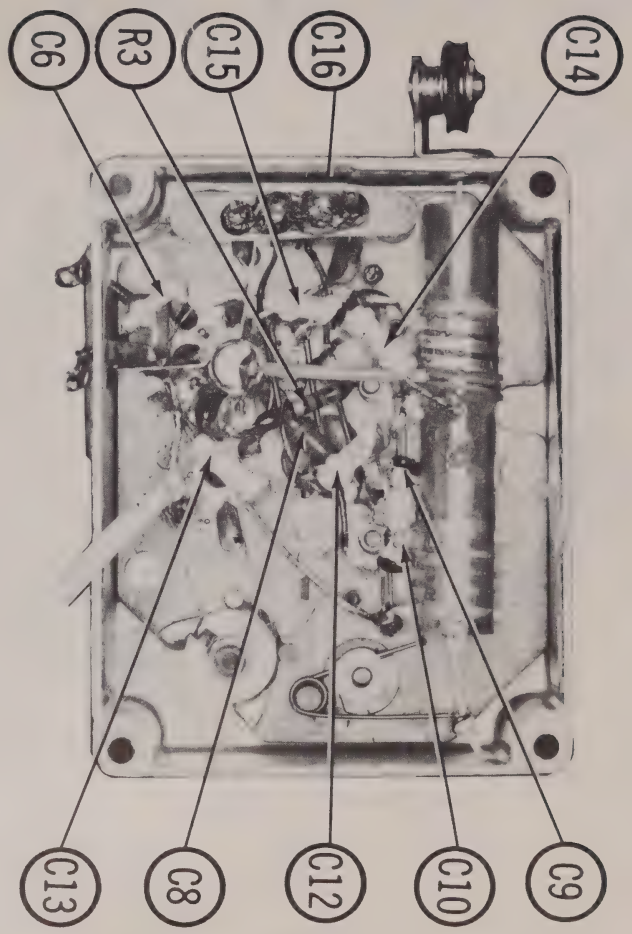
ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	2000 1400V		DAC-3	DD30-202	HVC16D2	3CCD-202	UAC-220	BL-D20
C4	2000 1400V		DAC-3	DD30-202	HVC16D2	3CCD-202	UAC-220	BL-D20
C5	2000 1400V		DAC-3	DD30-202	HVC16D2	3CCD-202	UAC-220	BL-D20
C6	10							
C7								
C8	1000		SI 1000	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C9	20							
C10	20							
C11								
C12	8.2							
C13	6.8							
C14	10							
C15	15							
C16	1000		SI 1000	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C17	180	(470) †	DI-180	DD-182	L10T18	CCD-181	GP318	10TS-T18
C18	4700		BPD-0047	DD-472	BYA10D47A	CCD-472	GP247	5HK-D47
C19	50000		BPD-05	DD-503	CUB4S5	4DP-3-503	GP150	5HK-S50
C20	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C21	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C22	15 N470 10%	#43957-10				*		
C23	150 N220	#43957-2				*		10TCR-T15
C24	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP220	5HK-D20
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C26	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C27	560		DI-560	DD-561	L10T56	CCD-561	GP356	10TS-T56
C28	560		DI-560	DD-561	L10T56	CCD-561	GP356	10TS-T56
C29	560		DI-560	DD-561	L10T56	CCD-561	GP356	10TS-T56
C30	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C31	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20

† Alternate Value. # Silvertone Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	44500-10		C47S-500K-S	B13-133	PP55A	Volume
B	Shaft				Not Req.	SK7	Not Req.	
C	Switch				Not Req.	Not Req.	Not Req.	Push-Pull Off-On
R2A	1meg	½	44500-11	B-68		Q17-137	RU16R	Tone
B	Bushing			Not Req.		Not Req.	SL-38	
C	Shaft			Not Req.		Not Req.	SL3500	

FM RF SUBCHASSIS



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	1meg	
R4	10K	
R5	2200Ω 1W	
R6	2.2meg	
R7	18meg	
R8	330Ω	

ITEM No.	RATING	REMARKS
R9	1meg	
R10	47K	
R11	22K	
R12	330Ω	
R13	82Ω	
R14	180Ω	

ITEM No.	RATING	REMARKS
R15	1000Ω 5W	#44448-1
R16	82Ω 5W	#47727-1
R17	1000Ω 10W	#44448-5
R18	330K	

Silvertone Part Number

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA	
K1	De-Emphasis, Output Cath.	(2) 100mmf, 3300mmf, 150Ω, 15K, 39K	45228		
K2	Audio Coupling	220mmf, 250mmf, 5000mmf, 5000mmf, 470K, 470K, 6.8meg	43743-2	Aerovox Centralab Sprague	PA-512-3 PC-158 DT-5

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		SILVERTONE PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	2nd FM IF Trans.	45241-1			BC-419			
L2	Loopstick	45534-9						
L3	AM Osc. Coil	43644-1						
L4	AM Input Trans.	44282-1	16-6780	16-6780	BC-356	13-PC9 1465-PC	RF4	
L5	Ratio Det. Trans.	45240-2	17-3492	17-3492				
L6	AM Output Trans.	44282-1	16-6780	16-6780	BC-357	13-PC10	RF4	
L7A	Line Choke	24308-2						3uh
B	Line Choke							3uh

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3100Ω Tap @ 10%	3-4Ω	43393-5 ①							① Alternate Part #43393-4

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	
SP1	5"	PM	6-8Ω	45599-2	5A1Z6.1	
SP2	5"	PM	6-8Ω	45599-7	5A1Z6.2	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	SILVERTONE PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.060A	47126 *	5E4 *	HA154 *	K200 *	SR200 *	* Silicon Type

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M2	Tuner	46134	FM Complete
M3	Tuning Cap.	46169	AM 2 Gang
M4	Switch	46165	Function

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

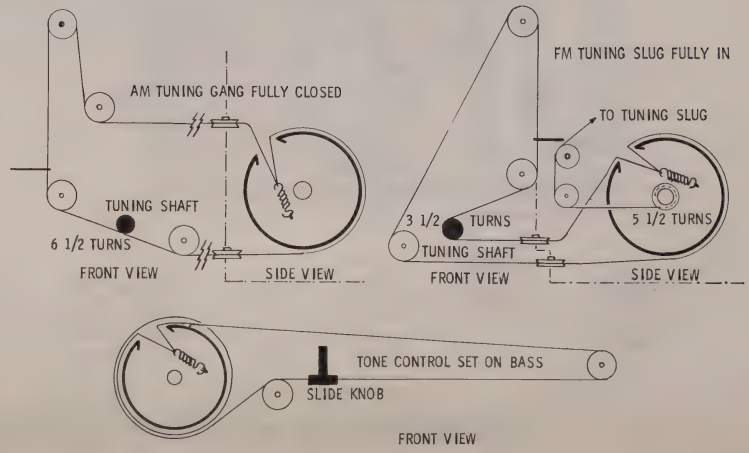
NAME	PART NO.	DESCRIPTION
Knob	47197-1	Tuning, Volume, Function
Knob	47499-48	Tone Lever, Model 25
Knob	47499-107	Tone Lever, Model 26
Pointer	47623-1	FM-AM
Pointer	47624-1	Tone
Dial Crystal	47487	FM
Dial Crystal	47486	AM
Cabinet Front	47490-48	Model 25
Cabinet Front	47490-107	Model 26
Cabinet Back	47608-48	Model 25
Cabinet Back	47608-107	Model 26

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

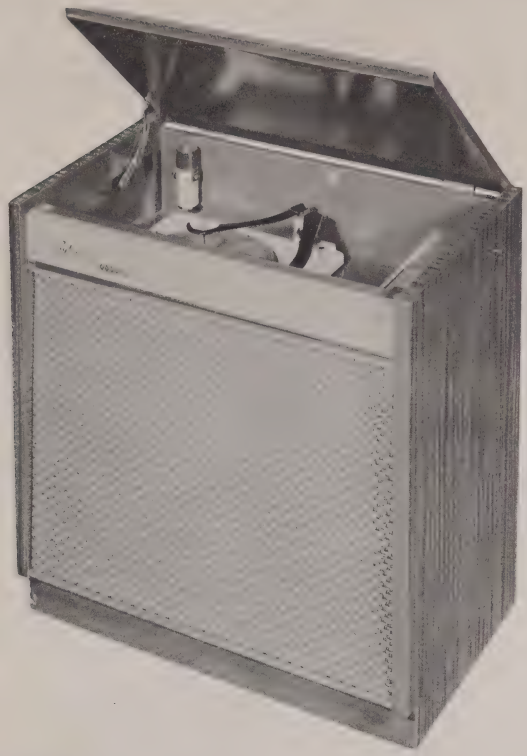
DIAL CORD STRINGING



PHOTOFACT® Folder

SYLVANIA MODEL 4703
Series (Ch. 1-635-1)

SYLVANIA MODEL 4703
Series (Ch. 1-635-1)

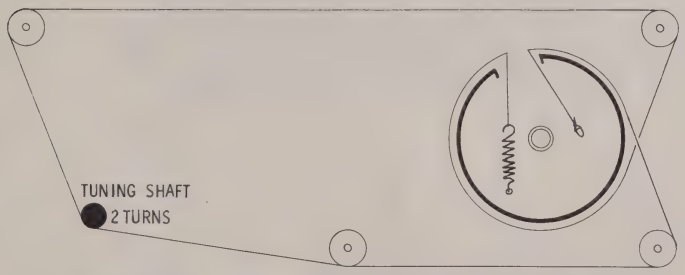


SYLVANIA MODEL 4703
Series (Ch. 1-635-1)

TRADE NAME	Sylvania Model 4703 Series (Ch. 1-635-1)		
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products, Inc., 700 Ellicott St., Batavia, N. Y.		
TYPE SET	AC Operated 10 Tube FM-AM Receiver With 4 Speed Automatic Record Changer		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	100 Watts, .95 Amp. @ 117 Volts AC (Less Motor)
TUNING RANGE—BROADCAST	535 – 1650KC	FREQ. MOD.	88-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER – SEE SIMILAR V-M 1201 – PHOTOFACT SET 436 FOLDER 18

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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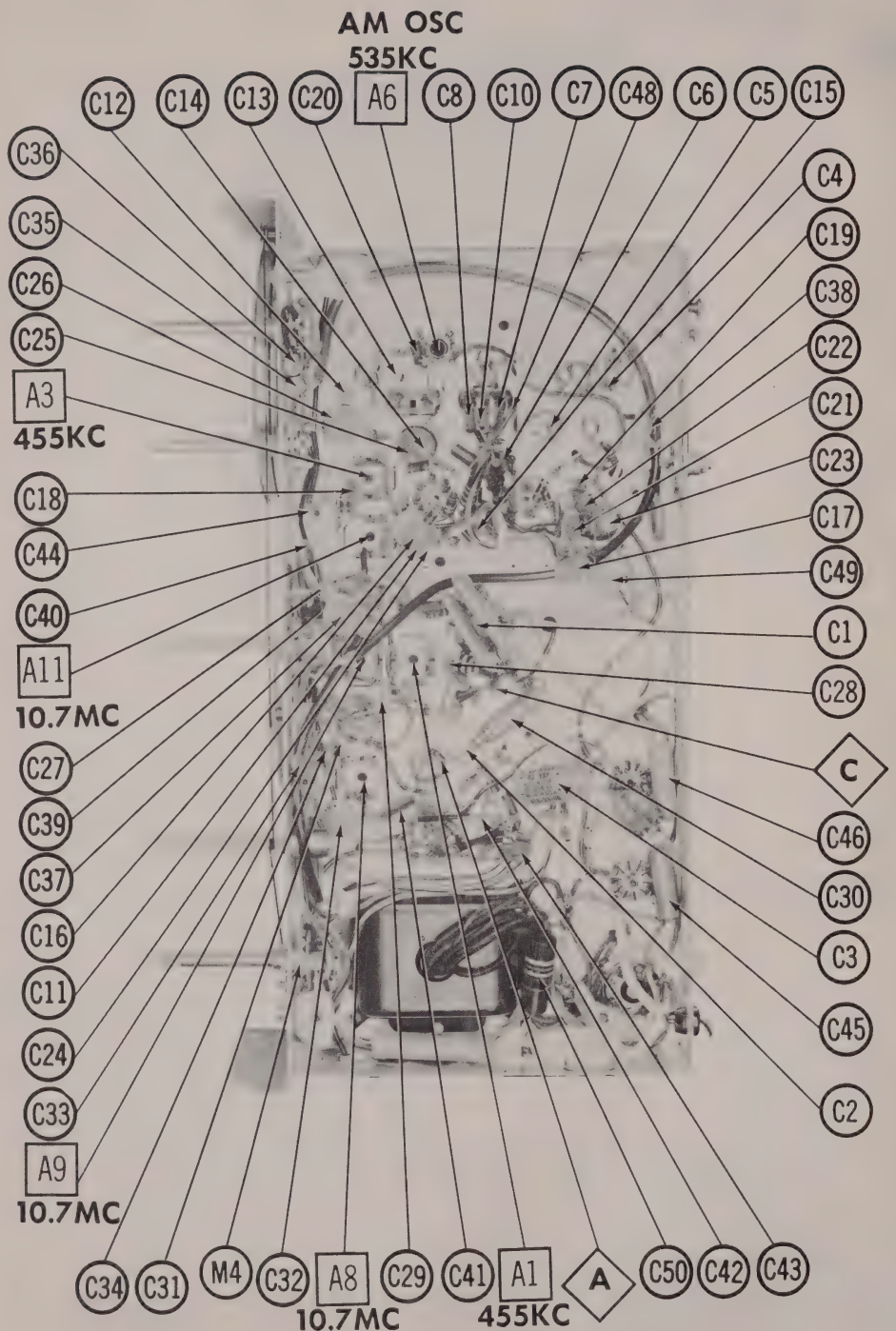
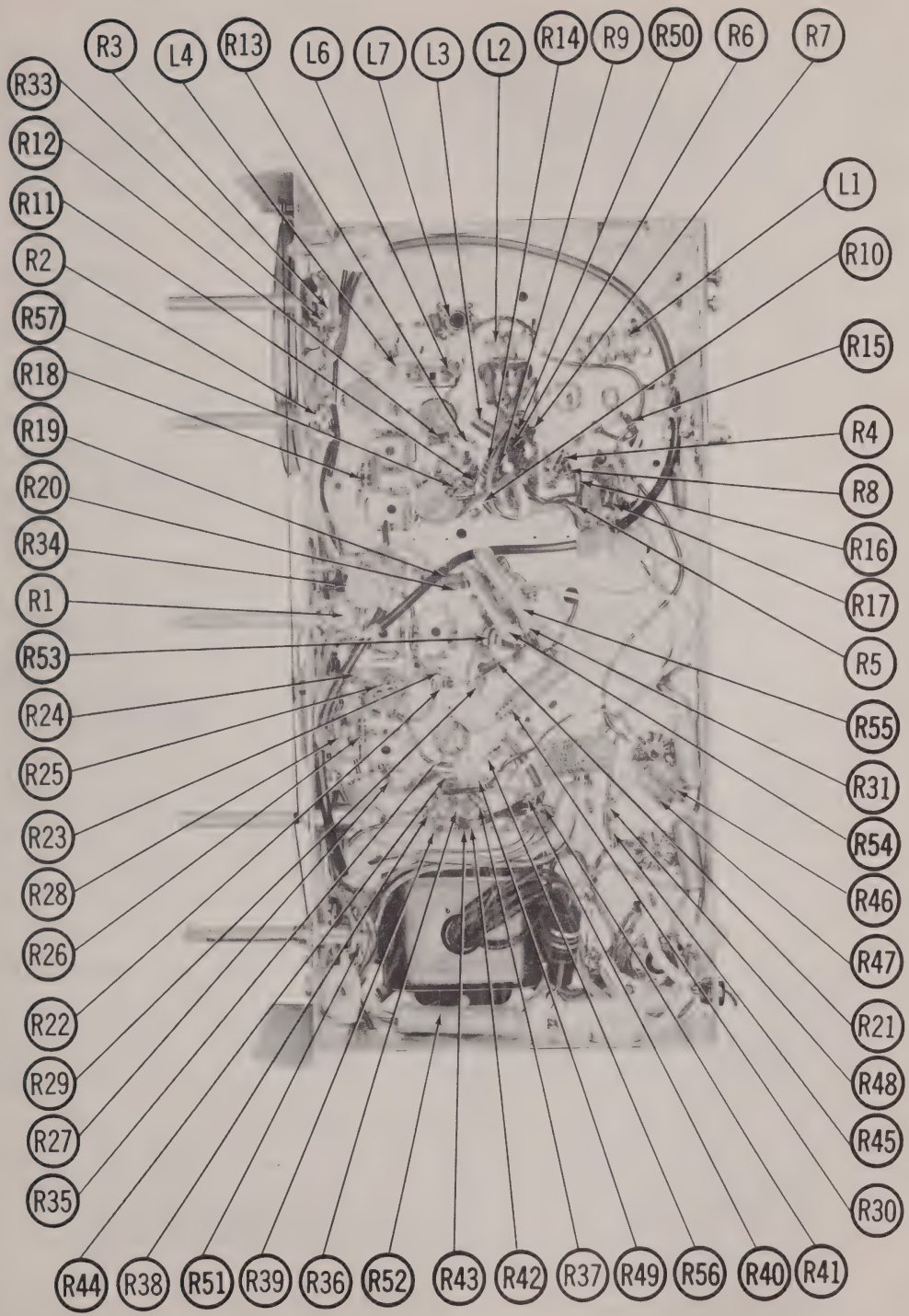
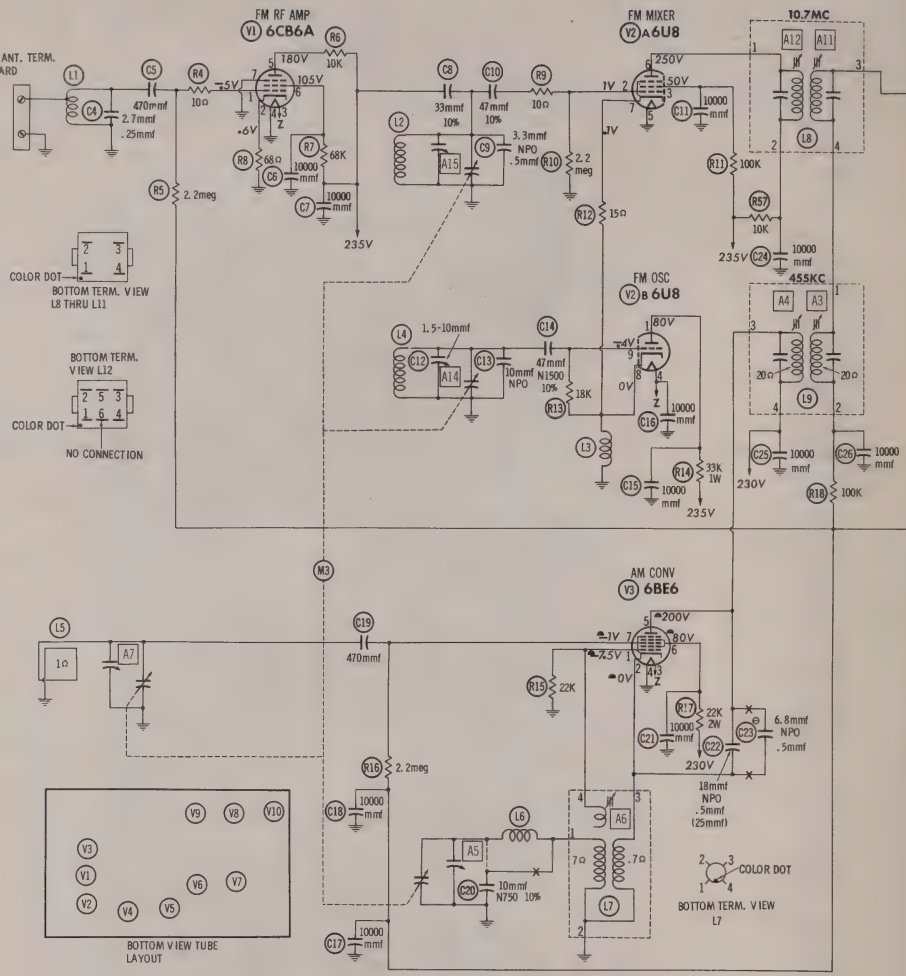
SET 484 FOLDER 16



CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6A	2.7meg *4.6meg	68Ω	.1Ω	0Ω	†12K	†70K	0Ω		
V2	6U8	†35K	2.2meg	†100K	.1Ω	0Ω	†12K	15Ω	.1Ω	18K
V3	6BE6	*22K	*.7Ω	.1Ω	0Ω	†*6300Ω	†*28K	*4.6meg		
V4	6BA6	485K *2.5meg	0Ω	0Ω	.1Ω	†5500Ω	†84K	0Ω		
V5	6AU6	490K	0Ω	0Ω	.1Ω	†6300Ω	†58K	68Ω		
V6	6AL5	0Ω	15K	2.2Ω	.1Ω	INF	0Ω	INF		
V7	12AX7	†250K	220K	470Ω	0Ω	0Ω	†250K	1meg	470Ω	.1Ω
V8	6BQ5	440K	440K	135Ω	.1Ω	0Ω	NC	†215Ω	NC	†750Ω
V9	6BQ5	440K	440K	135Ω	.1Ω	0Ω	NC	†215Ω	NC	†750Ω
V10	5U4GB	NC	¶	NC	33Ω	NC	30Ω	NC	¶	

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
* MEASURED IN "AM" POSITION.
NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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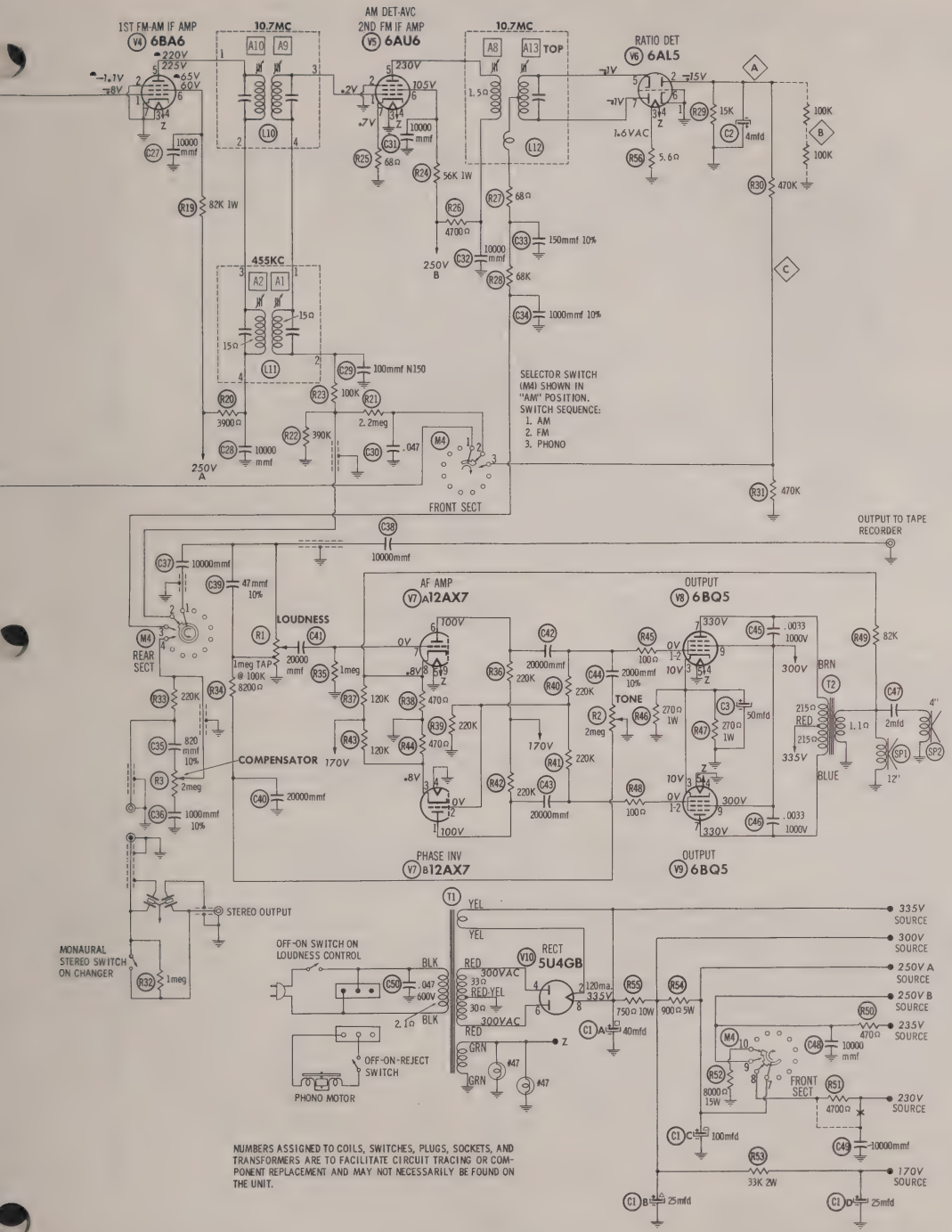


NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

SYLVANIA MODEL 4703
Series (Ch. 1-635-1)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:

A1, A2, A8 thru A13.....	GENERAL CEMENT #5097, 8727 WALSCO #2515
A3, A4.....	GENERAL CEMENT #8607, 9291 WALSCO #2520, 2522, 2523, 2524, 2537
A5, A7, A14, A15.....	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A6.....	GENERAL CEMENT #8606, 8606L, 8282, 9295 WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT - SELECTOR SWITCH IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7(grid) of AM Converter. Low side to chassis.	455KC (400~ Mod.)	(AM) Tuning Gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	1620KC	1620KC	"	A5	"
3.	"	535KC	535KC	"	A6	"
4.	Loop	1400KC	Tune to 1400KC signal.	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR SWITCH IN FM POSITION

Connect two matched 100K (±1%) resistors in series from point ⟨A⟩ to chassis. The junction of these two resistors is alignment point ⟨B⟩ as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side to ungrounded tube shield floating over Mixer-Osc. (V2). Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe thru 100K to point ⟨A⟩. Common to chassis.	A8, A9, A10, A11, A12	Adjust for maximum deflection.
6.	"	"	"	DC probe to point ⟨B⟩. Common to point ⟨C⟩.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR SWITCH IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side to ungrounded tube shield floating over Mixer-Osc. (V2). Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. thru 100K to point ⟨A⟩. Low side to chassis.	A8, A9, A10, A11, A12	Disconnect Stabilizing capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1. Reconnect C2.
6.	"	"	"	Vert. amp. to point ⟨C⟩. Low side to chassis.	A13	Adjust to place marker at the center of cross-over lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT — SELECTOR SWITCH IN FM POSITION

Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 300Ω in series with high side.	108.4MC (Unmod.)	(FM) Tuning gang fully open.	DC probe to point ⟨A⟩. Common to chassis.	A14	Adjust for maximum deflection.
8.	"	87.6MC	Tuning gang fully closed.	"	L4	"
9.	"	104MC	104MC	"	A15	"
10.	"	98MC	98MC	"	L1	"
11.	"	90MC	90MC	"	L2	"

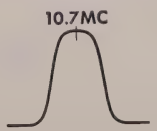


FIG. 1

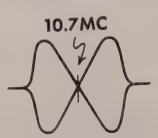


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

• CBS • GENERAL ELECTRIC • RAYTHEON • SYLVANIA •					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amplifier	6CB6A	V6	Ratio Detector	6AL5
V2	FM Mixer-Osc.	6U8	V7	AF Amp. -Phase Inv.	12AX7
V3	AM Converter	6BE6	V8	Output	6BQ5 (EL84) *
V4	1st FM-AM IF Amp.	6BA6	V9	Output	6BQ5 (EL84) *
V5	2nd FM IF Amp. -AM Det. -AVC	6AU6	V10	Rectifier	5U4GB

* Alternate

ELECTROLYTIC CAPACITORS

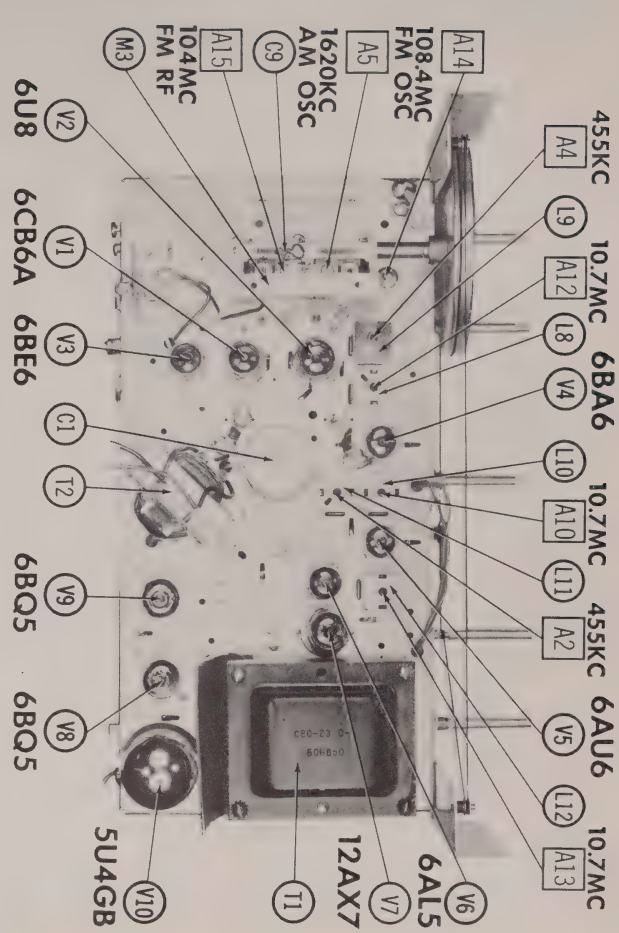
ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■40	350	161-4025	AFH4-05-70	C0374	FP420.39	TMQ-119	TVL-3843	
B	▲25	350			BR10035		TD-100-450	TVA-1718	
C	▲100	350							
D	25	350							
C2	4	50	161-1008	PRS1400	BBR4-50	TT50X4	TD-4-50	TVA-1402	
C3	50	25	161-1051	PRS1340	BBR50-25	TC29	TD-50-25	TVA-1206	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	2.7 . 25mmf							10TCC-V27
C5	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C8	33 10%		NPO-SI 33	D6-330	L10Q33	CCD-330	GP433	10TS-Q33
C9	3.3 NPO . 5mmf		NPO-DI 3.3	DTZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C10	47 10%		NPO-SI 47	D6-470	L10Q47	CCD-470	GP447	10TS-Q47
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C12	1.5-10	#172-0040		829-10				
C13	10 NPO		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C14	47 N1500 10%			TCL-47		*		
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C18	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C19	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C20	10 N750 10%		N750-SI 10	TCN-10	C10Q47U	CCTN-100	CN7-410	10TCU-Q10
C21	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C22	18 NPO . 5mmf	(25mmf) •		TCZ-18	C10Q18C	CCTO-180	CNO-418	10TCC-Q18
C23	6.8 NPO . 5mmf	Note 1	NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C28	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C29	100 N150					*		10TCP-T10
C30	.047 200V		P288N-047	DD-503	CUB2S47	CUB2S47	GEM-4147	2TM-S47
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C32	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C33	150 10%		DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15
C34	1000 10%			DD-102	1R5D1	CCD-102	GP210	10TS-D10
C35	820 10%		DI-820	DD-821	1R5T82	CCD-821	GP382	10TS-T82
C36	1000 10%		DI-1000	DD-102	1R5D1	CCD-102	GP210	10TS-D10
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C38	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C39	47 10%		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C40	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C41	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C42	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C43	20000		BPD-02	DD-203	BYB6S2	CCD-203	GP120	5HK-S20
C44	2000 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20
C45	.0033 1000V		P1088N-0033	DD-332	CUB10D33	16DP-1-332	GEM-10233	10TM-D33
C46	.0033 1000V		P1088N-0033	DD-332	CUB10D33	16DP-1-332	GEM-10233	10TM-D33
C47	2mfd 50V		P282Z-2.0		MP2W2			118P20502S2

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C48	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C49	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C50	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47

Sylvania Part Number. ♦ Alternate Value. Note 1. Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg 100K Tap	½	152-0064	BT-7417	A47F3-1meg	Q18-137X	RU16T15	Loudness
B	Bushing			Not Req.	Not Req.	Not Req.	SL-38	
C	Shaft			Not Req.	FS-3	Not Req.	SL-3500	
D	Switch			KR-1	SWE-12	76-1	US41	Power Off-On
R2A	2meg		153-0194	B-75	A47-2meg-S	Q11-139	U56	Tone
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	2meg		153-0195	B-75	A47-2meg-S	Q11-139	U56	Compensator
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	ITEM No.	RATING	ITEM No.	RATING	ITEM No.	RATING	ITEM No.	RATING	ITEM No.	RATING
R4	10Ω	R13	18K	R22	390K	R31	470K	R40	220K	R49	82K
R5	2.2meg	R14	33K 1W	R23	100K	R32	1meg	R41	220K	R50	470Ω
R6	10K	R15	22K	R24	56K 1W	R33	220K	R42	220K	R51	4700Ω
R7	68K	R16	2.2meg	R25	68Ω	R34	8200Ω	R43	120K	R52	8000Ω 15W
R8	68Ω	R17	22K 2W	R26	4700Ω	R35	1meg	R44	470Ω	R53	33K 2W
R9	10Ω	R18	100K	R27	68Ω	R36	220K	R45	100Ω	R54	900Ω 5W
R10	2.2meg	R19	82K 1W	R28	68K	R37	120K	R46	270Ω 1W	R55	750Ω 10W
R11	100K	R20	3900Ω	R29	15K	R38	470Ω	R47	270Ω 1W	R56	5.6Ω
R12	15Ω	R21	2.2meg	R30	470K	R39	220K	R48	100Ω	R57	10K

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		SYLVANIA PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Coil	113-0052						
L2	FM RF Coil	113-0051						
L3	RF Choke	145-0034						1.3uh
L4	FM Osc. Coil	113-0042						
L5	Loop Ant.	582-0039						
L6	RF Choke	145-0034						1.3uh
L7	AM Osc. Coil	113-0050			BC-393			
L8	1st FM IF	121-0106	16-3487	16-3487	FM-254	1463		
L9	1st AM IF	121-0111	16-6758	16-6758	BC-352	12-C1	RF-1	
L10	2nd FM IF	121-0106	16-3487	16-3487	FM-254	1463		
L11	2nd AM IF	121-0032	16-6758	16-6758	BC-353	12-C2	RF-2	
L12	Ratio Detector	127-0001	17-3498	17-3498	FM-255	1465		

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V@ .95A	600 VCT @.120A	5V@ 3A	141-0079	22R05	P-2844			22R05	
	SEC. 3	SEC. 4	SEC. 5							
	6.3V@ 3.9A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5300Ω CT	6-8Ω	143-0081	24S55	A-2904①	AU-609	A-3870	24S55	S-55X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω	539-1212	12A1Z6.7	
SP2	4"	PM	12-14Ω	539-0407	4A1T	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								
	SYLVANIA PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1		13T	Not Req.	13	Not Req.			8TA4-S	N-8TA-S

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	SYLVANIA PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M2		* W-204DS †↑ or * W-204DD-1 ♦	* A-44X † or * A-44XSD †♦ or * A-44XDD ♦	† Jewel ♦ Diamond * Includes Cartridge

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M3	Tuning Cap	170-0033	4 Gang (AM Sections: Ant. 12—465mmf, Osc. 19—161mmf)
M4	Switch	571-0032	Function

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	740-0236	Tuning
Knob	740-0245	Off-On-Volume, Bass, Treble, Record Compensation
Knob	740-0238	Function Selector
Dial Pointer	792-0025	
Dial Station	722-0072	

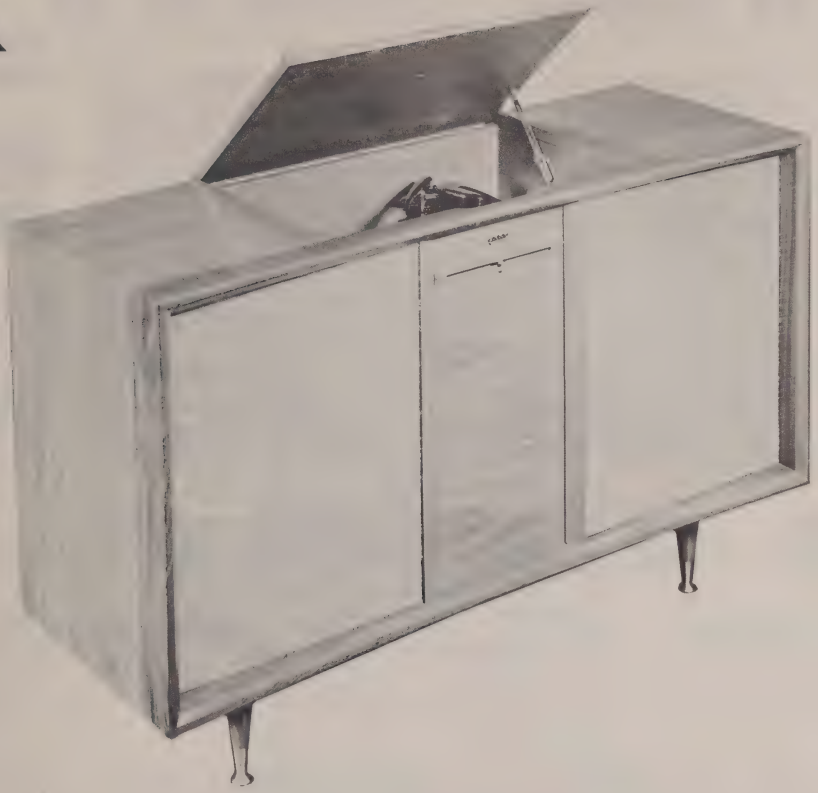
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

WEBCOR MODEL 1960
(Ch. 14X311-1, 14X312-1)

WEBCOR MODEL 1960
(Ch. 14X311-1, 14X312-1)



WEBCOR MODEL 1960
(Ch. 14X311-1, 14X312-1)

TRADE NAME	Webcor Models BC1960, EC1960, MC1960, WC1960 (Preamp Ch. 14X311-1, Amp. Ch. 14X312-1)
MANUFACTURER	Webcor, Inc., 5610 W. Bloomingdale Ave., Chicago 39, Illinois
TYPE SET	AC Operated 9 Tube Stereo Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 135 Watts, 1.25 Amp. @117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #E168-33 USED IN MODEL EC1960 OR PART #T168-33 USED IN MODELS BC1960, MC1960, WC1960 — SEE WEBCOR 172 — PHOTOFACT SET 447 FOLDER 13

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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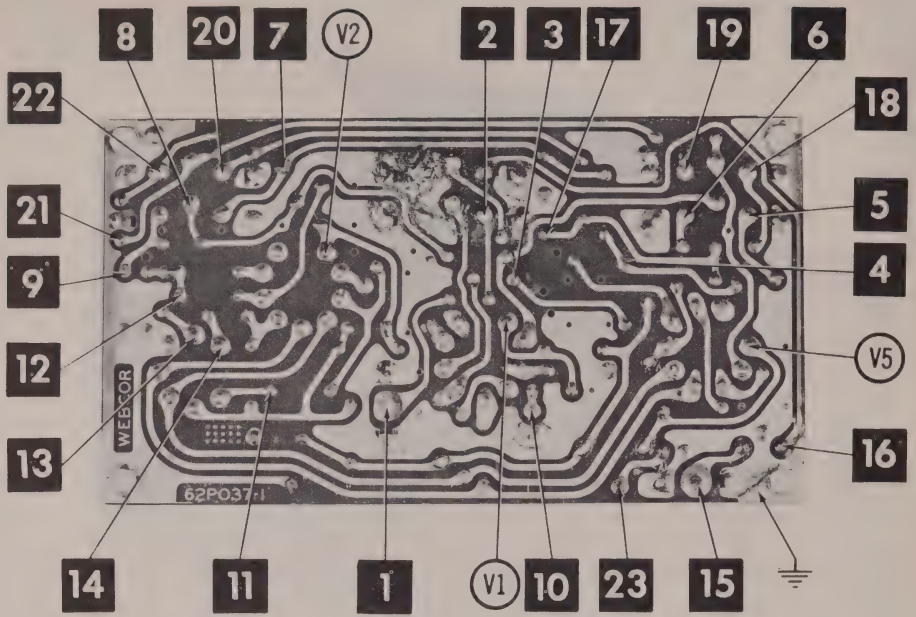
JT662

SET 484 FOLDER 17



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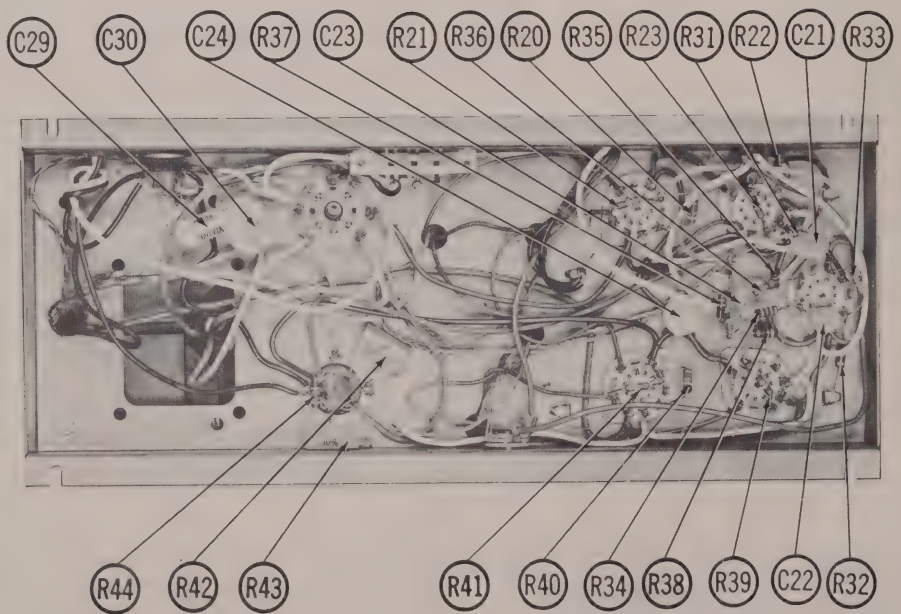
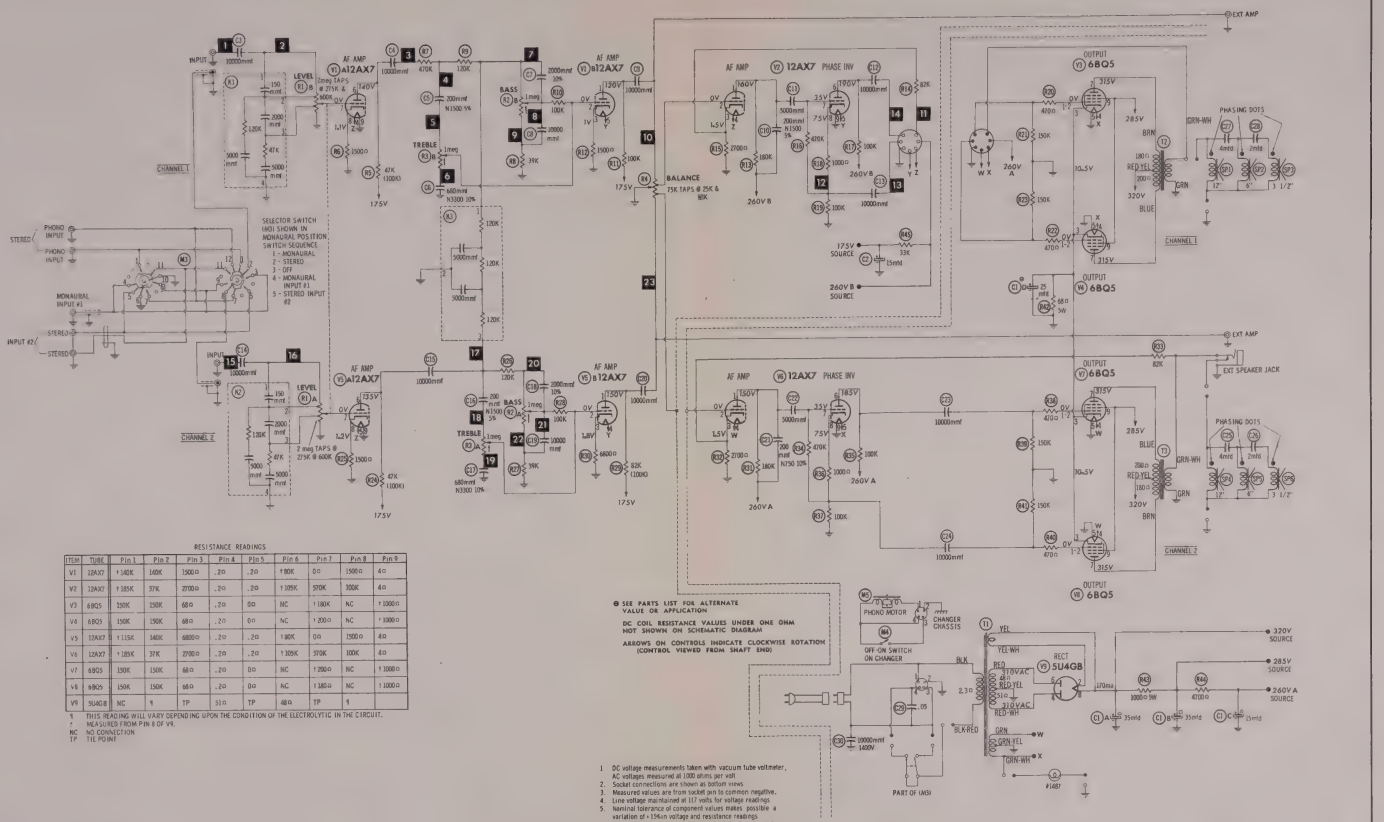
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



AMP. CHASSIS - BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	↑140K	140K	1500Ω	.2Ω	.2Ω	↑80K	0Ω	1500Ω	4Ω
V2	12AX7	↑185K	37K	2700Ω	.2Ω	.2Ω	↑105K	570K	100K	4Ω
V3	6BQ5	150K	150K	68Ω	.2Ω	0Ω	NC	↑180K	NC	↑1000Ω
V4	6BQ5	150K	150K	68Ω	.2Ω	0Ω	NC	↑200Ω	NC	↑1000Ω
V5	12AX7	↑115K	140K	6800Ω	.2Ω	.2Ω	↑80K	0Ω	1500Ω	4Ω
V6	12AX7	↑185K	37K	2700Ω	.2Ω	.2Ω	↑105K	570K	100K	4Ω
V7	6BQ5	150K	150K	68Ω	.2Ω	0Ω	NC	↑200Ω	NC	↑1000Ω
V8	6BQ5	150K	150K	68Ω	.2Ω	0Ω	NC	↑185Ω	NC	↑1000Ω
V9	5U4GB	NC	↑	TP	51Ω	TP	68Ω	TP	↑	

↑ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
↑ MEASURED FROM PIN 8 OF V9.
NC NO CONNECTION
TP TIE POINT

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings
6. All controls at minimum, proper output load connected

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
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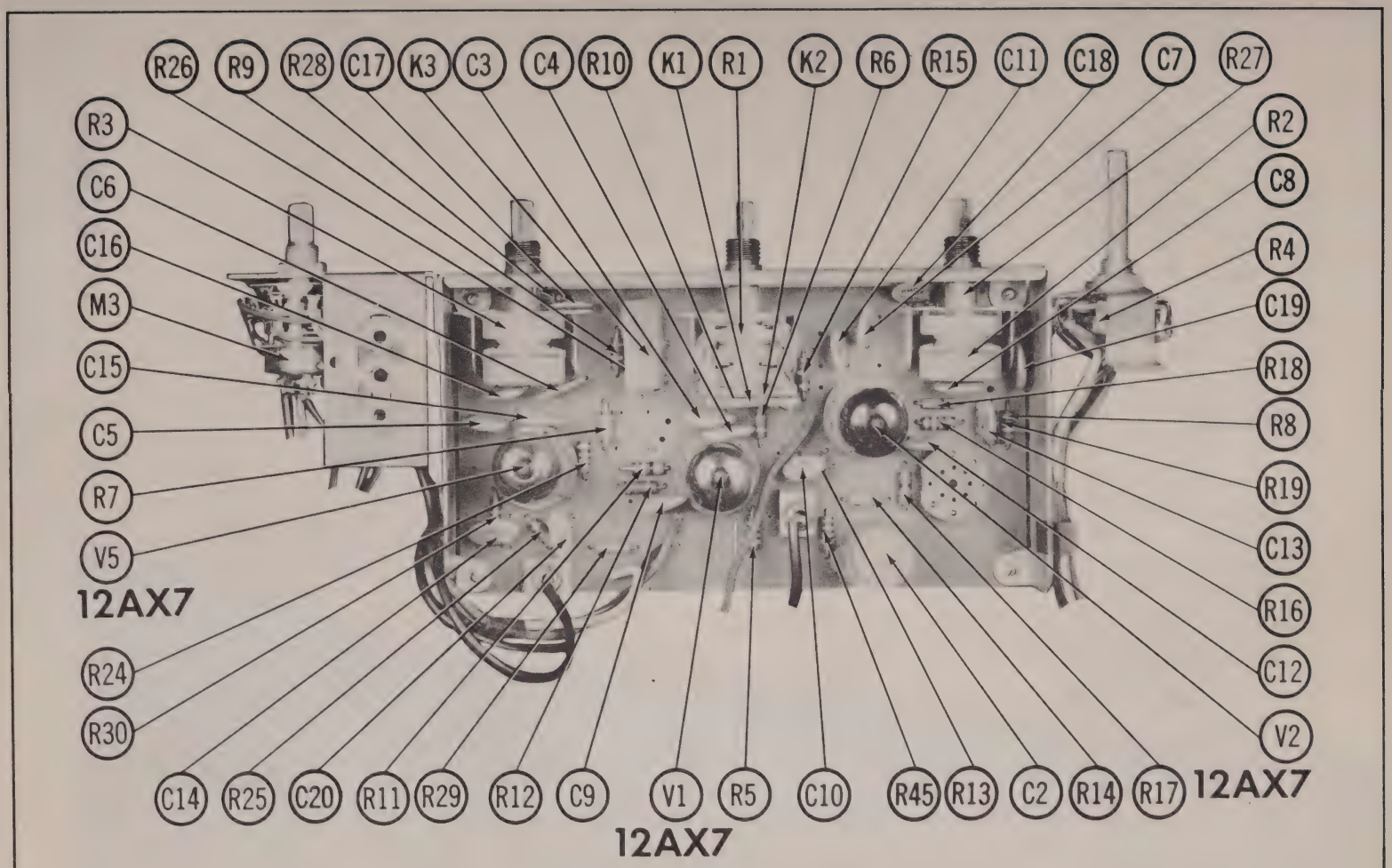
WEBCOR MODEL 1960
(Ch. 14X311-1, 14X312-1)



PREAMP. CHASSIS - TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	Channel 1 AF Amp.	12AX7
V2	Channel 1 AF Amp. - Phase Inverter	12AX7
V3	Channel 1 Output	6BQ5
V4	Channel 1 Output	6BQ5
V5	Channel 2 AF Amp.	12AX7
V6	Channel 2 AF Amp. - Phase Inverter	12AX7
V7	Channel 2 Output	6BQ5
V8	Channel 2 Output	6BQ5
V9	Rectifier	5U4GB

◆ CBS ◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA WEBCOR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲35	375	30P306	AFH4-79	DO150	FP421.4	TMQ-16	TVL-4771	
B	■35	375			BBR25-25		TD-25-25	TVA-1205	
C	▲15	350							
D	25	25	①						
C2	15	300	30P281	PRSI640	BRI635	TC64	TD-16-350	TVA-1607	

① In some versions C1D is 15mfd.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C5	200 N1500 5%	#30P322				*		
C6	680 N3300 10%	#30P323				*		
C7	2000 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C10	200 N1500 5%	#30P322				*		
C11	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C14	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C16	200 N1500 5%	#30P322				*		
C17	680 N3300 10%	#30P323				*		
C18	2000 10%		DI-2000		PM6D2	CCD-202	GP220	10TS-D20
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C21	200 N750 10%		N750-DI 200	DTN-200	C10T2U	CCTN-201	CN7-320	10TCU-T20
C22	5000		BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C25	4mfd 25V	#30P278-3	P123ZNN-4.0					118P40502S2
C26	2mfd 25V	#30P317-1	P123ZNN-2.0		MP2W2			118P20502S2
C27	4mfd 25V	#30P278-3	P123ZNN-4.0					118P40502S2
C28	2mfd 25V	#30P317-1	P123ZNN-2.0		MP2W2			118P20502S2
C29	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C30	10000 1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	2HV-110	BL-S10

Webcor Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA WEBCOR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg *	Non-tapered	31P159					Level, Channel 2
B	2meg *							Level, Channel 1

CONTROLS (cont)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA WEBCOR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R2A	1meg	Non-tapered	31P160					Bass, Channel 2
B	1meg							Bass, Channel 1
R3A	1meg		31P160					Treble, Channel 2
B	1meg							Treble, Channel 1
R4	75K †		31P161					Balance

* Taps ⓐ 275K & 600K
† Taps ⓐ 25K & 50K.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	47K	(100K) *
R6	1500Ω	
R7	470K	
R8	39K	
R9	120K	
R10	100K	
R11	100K	
R12	1500Ω	
R13	180K	
R14	82K	
R15	2700Ω	
R16	470K	
R17	100K	
R18	1000Ω	
R19	100K	
R20	470Ω	
R21	150K	
R22	470Ω	
R23	150K	
R24	47K	(100K) *
R25	1500Ω	
R26	120K	
R27	39K	
R28	100K	
R29	82K	(100K) *
R30	6800Ω	
R31	180K	
R32	2700Ω	
R33	82K	
R34	470K	
R35	100K	
R36	1000Ω	
R37	100K	
R38	470Ω	
R39	150K	
R40	470Ω	
R41	150K	
R42	68Ω 5W	
R43	1000Ω 5W	
R44	4700Ω	
R45	33K	

* Used in early production versions.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA WEBCOR PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ 1.25A	620 VCT ⓐ .170A	5V ⓐ 3A	68P077						
	SEC. 3	SEC. 4	SEC. 5							
	12.6VCT ⓐ 3.7A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA WEBCOR PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	7200Ω CT	14-16Ω	67P077	24S55				24S55		
T3	7200Ω CT	14-16Ω	67P077	24S55				24S55		

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA WEBCOR PART No.	QUAM PART No.	NOTES
SP1	12"	PM	14-16Ω	76P086	12A1Z15.9	
SP2	6"	PM	14-16Ω	76P082-2	6A1Z16	
SP3	3½"	PM	14-16Ω	76P081-2	3A15TZ15.5	
SP4	12"	PM	14-16Ω	76P086	12A1Z15.9	
SP5	6"	PM	14-16Ω	76P082-2	6A1Z16	
SP6	3½"	PM	14-16Ω	76P081-2	3A15TZ15.5	

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	WEBCOR PART No.	REPLACEMENT DATA
K1	Loudness Comp.	150mmf, 2000mmf, 5000mmf, 5000mmf, 47K, 120K	62P019	
K2	Loudness Comp.	150mmf, 2000mmf, 5000mmf, 5000mmf, 47K, 120K	62P019	
K3	Tone Comp.	5000mmf, 5000mmf, 120K, 120K, 120K	62P033	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							
	WEBCOR PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1	21P588	13TB	Not Req.	26S	S1-1 S3-3			8TA4-S	N-8TA-S

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	WEBCOR PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M2	21S617-S or 21S617-SD	W-103STSS † or W-103STDS † ♦	S-69X † or S-69XSD † ♦ or S-69XDD ♦	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	WEBCOR PART No.	NOTES
M3	Switch	32P149	Function, (Rotary Wafer Type)
M4	Switch	32P133	Off-On (Part of Changer)
M5	Motor		Phono Drive
	Printed Board	62P037-1	Preamp.

CABINETS & CABINET PARTS

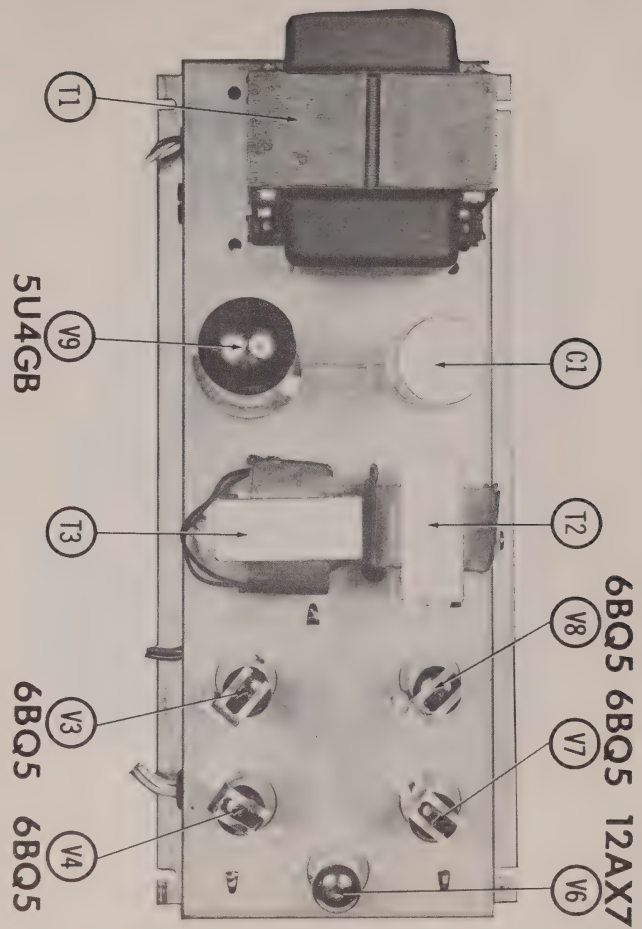
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	39P206-9	Volume, Bass, Treble, Selector (Brown)
Knob	39P206-10	Volume, Bass, Treble, Selector (Black)
Front Extrusion Ass'y.	11X2239	Includes Front Trim Extrusion, Leaf Spring, Balance Control Shaft, Bearing, & Balance Control Knob #39P232.
Case	92X106-1	Mahogany
Case	92X106-2	Blond
Case	92X106-3	Walnut
Case	92X106-4	Ebony

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

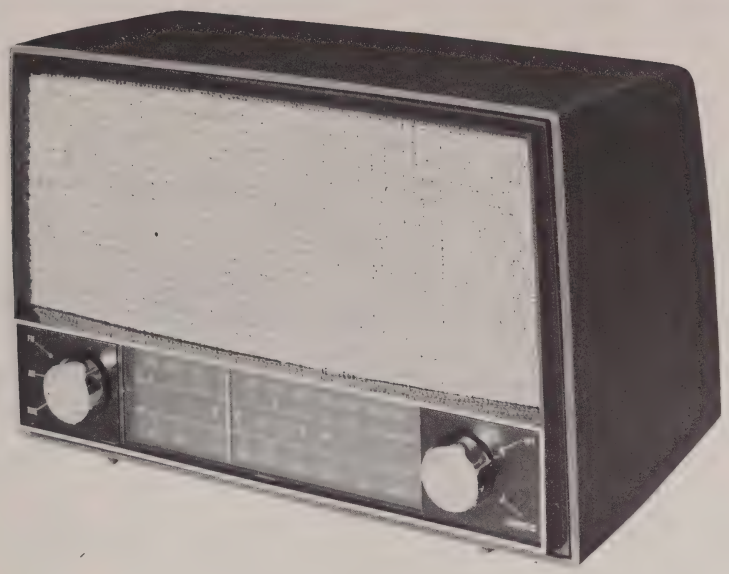
AMP CHASSIS - TOP VIEW



PHOTOFACT® Folder

ZENITH MODELS
C724G, L, P (Ch. 7C02)

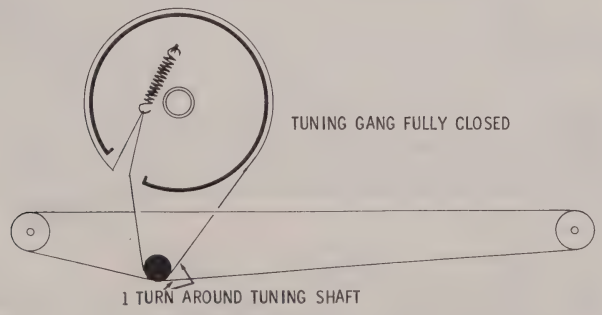
ZENITH MODELS
C724G, L, P (Ch. 7C02)



ZENITH MODELS
C724G, L, P (Ch. 7C02)

TRADE NAME	Zenith Models C724G, C724L, C724P (Ch. 7C02)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois		
TYPE SET	AC-DC Operated 7 Tube FM-AM Receiver		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	32 Watts, .35 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	535—1620KC	FREQ. MOD.	88-108MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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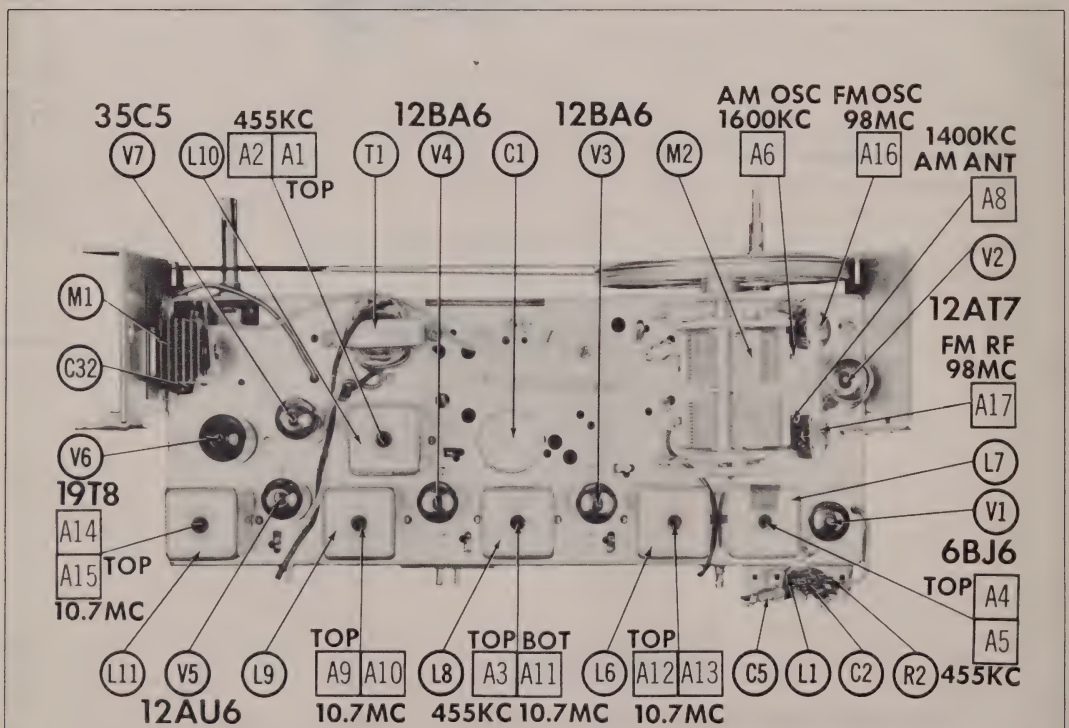
SET 484 FOLDER 18

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Suggested alignment tools: A1 thru A5, A7, A9 thru A15..... GENERAL CEMENT #8606, 8606L, 8282. 9295 WALSCO #2526, 2543, 2544, 2545 A6, A8..... GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .05mfd to pin 2 (grid) of AM Mixer. Low side to chassis.	455KC (400~ Mod.)	(AM) 600KC	Across voice coil.	A1, A2, A3, A4, A5	Adjust for maximum output.
2.	Loop	1600KC	1600KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	600KC	600KC	"	A7	"
4.	"	1400KC	Tune to 1400KC signal.	"	A8	Adjust for maximum output while rocking tuning gang.



CHASSIS TOP VIEW

ALIGNMENT INSTRUCTIONS (cont)

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM– SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .05mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to pin 1 (grid) of FM Limiter. Common to chassis.	A9, A10, A11, A12, A13	Adjust for maximum deflection.
6.	"	"	"	DC probe to point ⟨A⟩. Common to chassis.	A14	"
7.	"	"	"	DC probe to point ⟨B⟩. Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE–SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru .05mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to pin 1 (grid) of FM Limiter. Low side to chassis.	A9, A10, A11, A12, A13	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
6.	"	"	"	Vert. amp. thru 27K to point ⟨A⟩. Low side to chassis.	A14	"
7.	"	"	"	Vert. amp. thru 27K to point ⟨B⟩. Low side to chassis.	A15	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT – SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	Across FM antenna terminals with 120Ω in each lead. (Remove Line Antenna.)	98MC (Unmod.)	(FM) 98MC	DC probe to pin 1 (grid) of FM Limiter. Common to chassis.	A16, A17	Adjust for maximum deflection.

FIG. 1

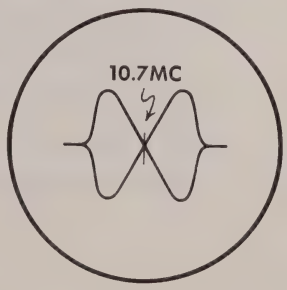
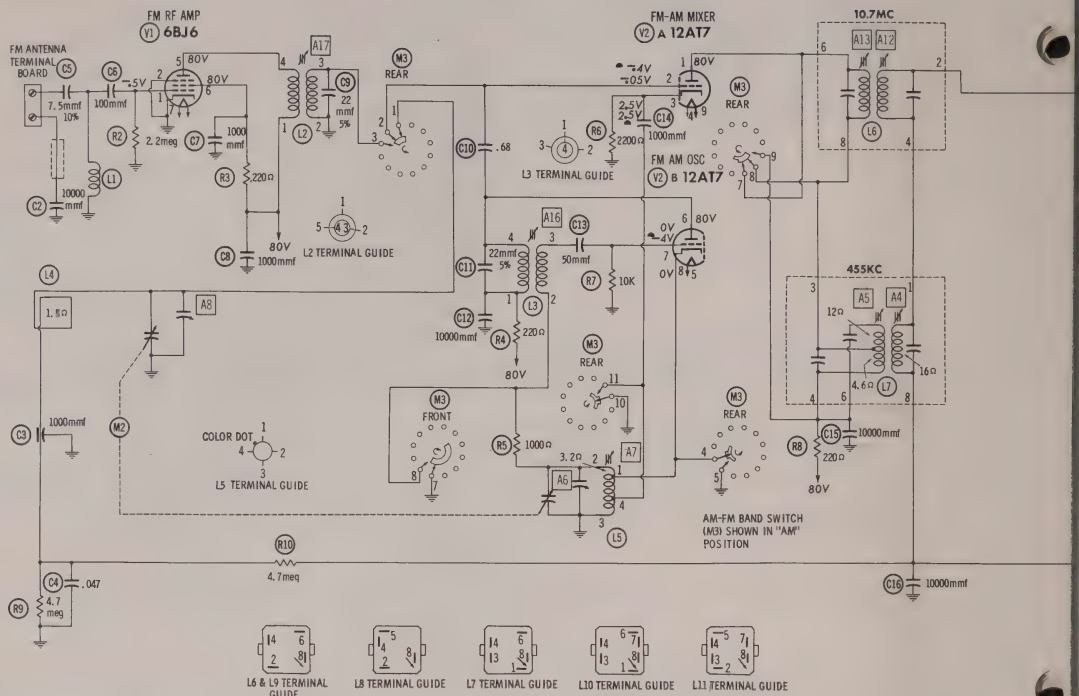


FIG. 2



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BJ6	2.2meg	0Ω	112Ω	106Ω	†1200Ω	†1400Ω	0Ω		
V2	12AT7	†1400Ω	.1Ω ▲3meg	2200Ω	106Ω	94Ω	†1400Ω	10K	0Ω ▲2Ω	100Ω
V3	12BA6	2.2meg	0Ω	94Ω	82Ω	†1200Ω	†1200Ω	0Ω		
V4	12BA6	100K	0Ω	82Ω	70Ω	†1200Ω	†1200Ω	100Ω		
V5	12AU6	100K	0Ω	31Ω	19Ω	†16K	†16K	0Ω		
V6	19T8	150K	150K	300K	0Ω	19Ω	550K	0Ω	4.7meg	†470K
V7	35C5	150Ω	470K	147Ω	112Ω	470K	†1000Ω	†300Ω		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM OUTPUT OF M1.
▲ MEASURED IN "AM" POSITION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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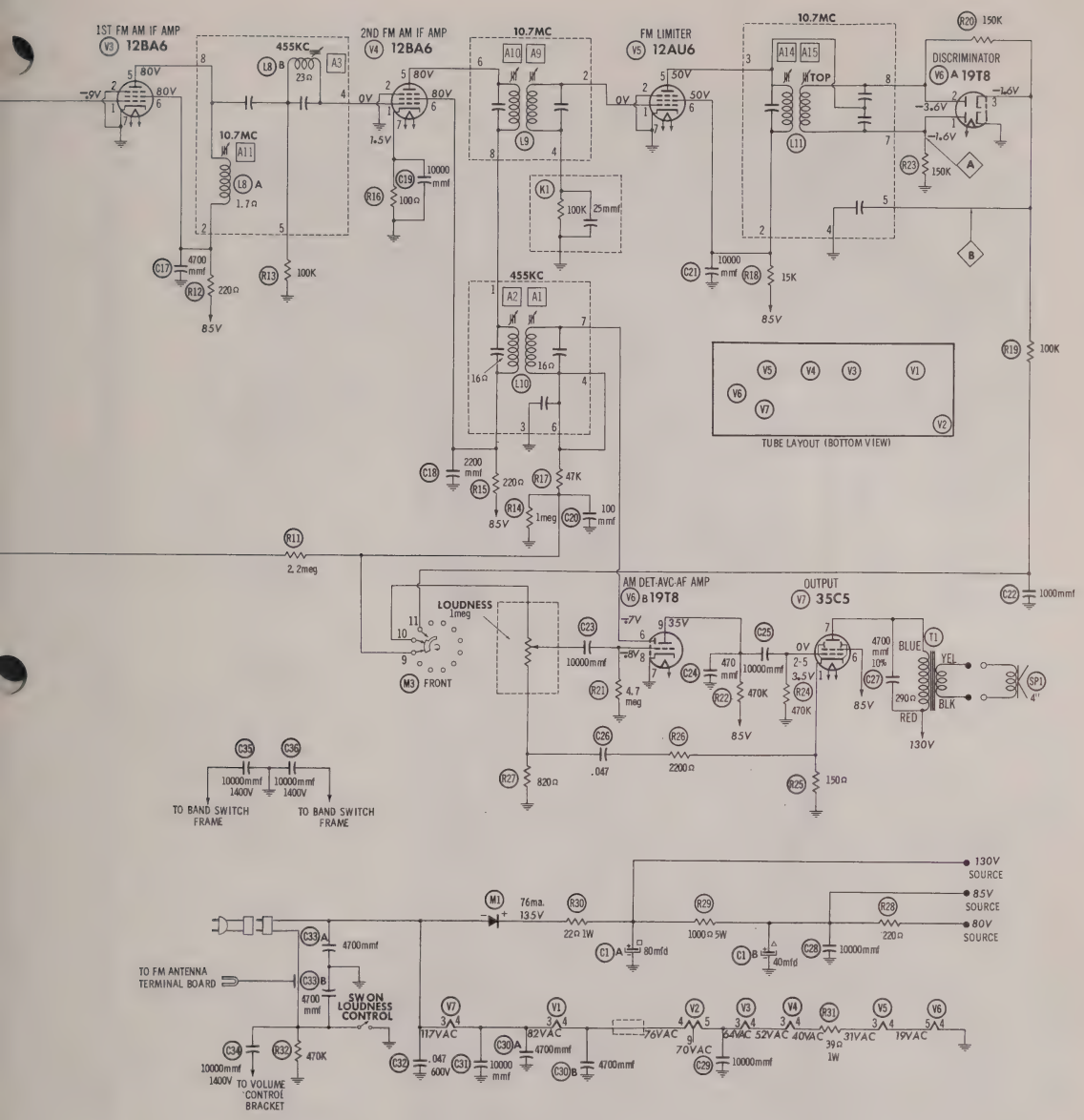
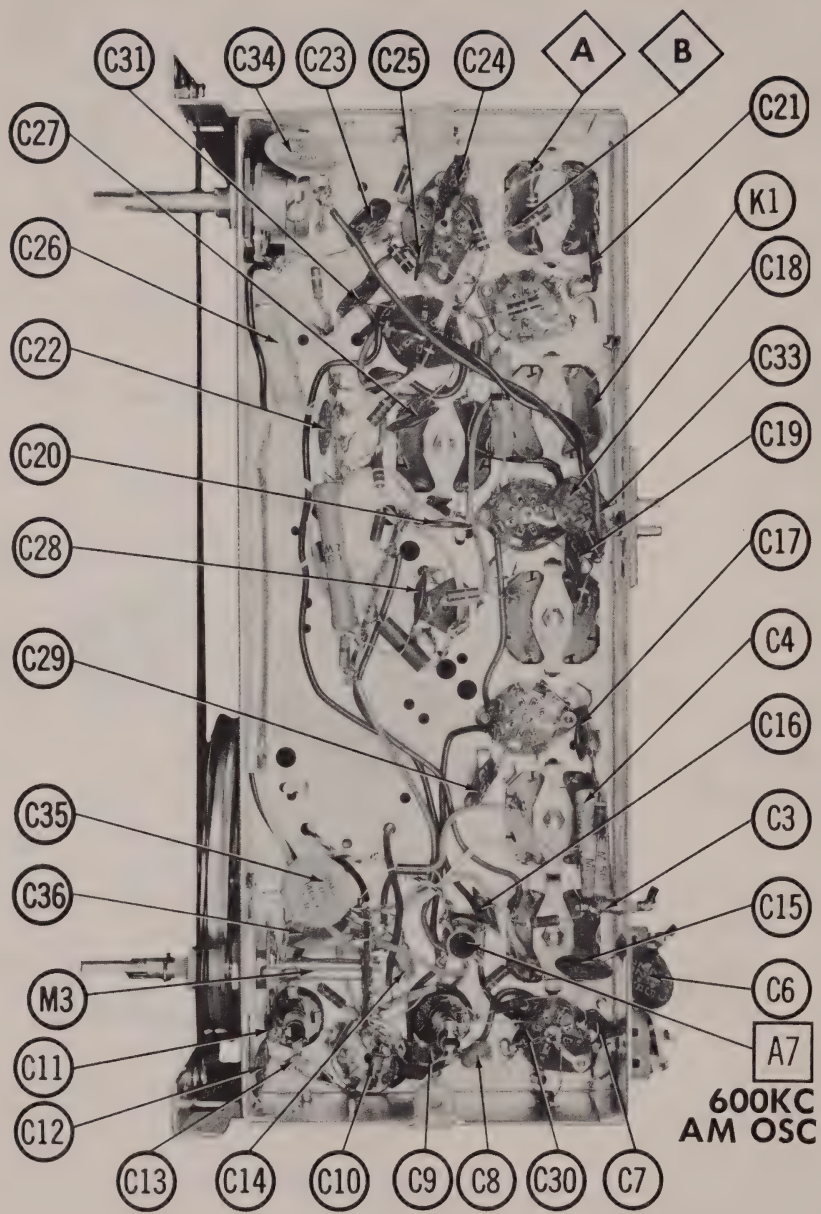


ZENITH MODELS
C724G, L, P (Ch. 7C02)



CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

• CBS • GENERAL ELECTRIC • RAYTHEON • SYLVANIA •					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amplifier	6BJ6	V5	FM Limiter	12AU6
V2	FM AM Mixer-FM AM Osc.	12AT7	V6	Discriminator-AM Det. -AVC	19T8
V3	1st FM-AM IF Amp.	12BA6	V7	Output	35C5
V4	2nd FM-AM IF Amp.	12BA6			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■80	150	22-3056	AFH2-19	XB0181	FP216	TMD-16	TVL-2442.1	
B	▲40	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

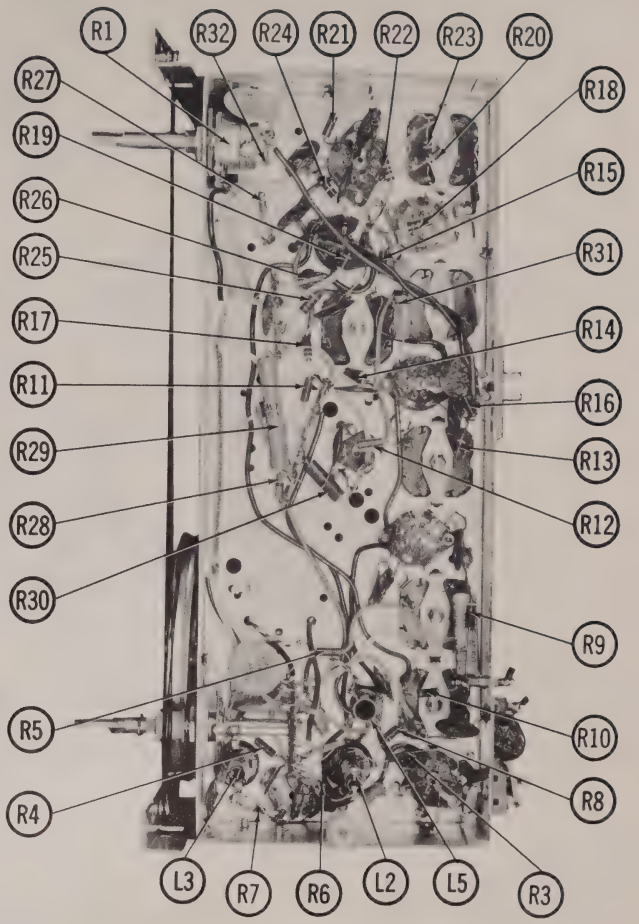
ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C3	1000		EF-001	MFT-1000		CCF-102	CT280A	
C4	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C5	7.5 10%	#22-1852			C10V8C			10TS-V75
C6	100		BPD-0001	DD-101	LI0T1	CCD-101	GP310	10TS-T10
C7	1000		SI 1000	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C8	1000		SI 1000	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C9	22 5%		NPO-SI 22	TCZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22
C10	.68	#22-1766	NPO-SI .68	TCZ-R68				
C11	22 5%		NPO-SI 22	TCZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22
C12	10000		BPD-01	DD-103	BYA10D1	CCD-103	GP110	5HK-S10
C13	50		SI 50	DD-500	LI0Q5	CCD-500	GP450	10TS-Q50
C14	1000		SI 1000	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C17	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5HK-D47
C18	2200		BPD-0022	DD-222	BYA10D22	CCD-222	GP222	5HK-D22
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C20	100		BPD-0001	DD-101	LI0T1	CCD-101	GP310	10TS-T10
C21	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C22	1000		BPD-001	DD-102	BYA10D1	CCD-102	GP210	5HK-D10
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C24	470		BPD-00047	DD-471	BYA10T47	CCD-471	GP347	10TS-T47
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C26	.047 200V		P288N-047	DD-503	CUB6S47	4DP-3-473	GEM-4147	2TM-S47
C27	4700 10%		DI-4700		PM6D47	CCD-472	JL-247	10TS-D47
C28	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C30A	4700		BPD-2X0047	DD2-502	BYC6DD47	CCD-472	B2X250	5HK-2D47
B	4700					CCD-472		
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C32	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-6147
C33A	4700		BPD-2X0047	DD2-502	BYC6DD47	CCD-472	B2X250	5HK-2D47
B	4700					CCD-472		
C34	10000 1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C35	10000 1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C36	10000 1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10

Zenith Part Number.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	63-4494	B-70-S	A47-1meg-Z	Q13-137	U53	Loudness
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	2.2meg	
R3	220Ω	
R4	220Ω	
R5	1000Ω	
R6	2200Ω	
R7	10K	
R8	220Ω	
R9	4.7meg	
R10	4.7meg	
R11	2.2meg	
R12	220Ω	

ITEM No.	RATING	REMARKS
R13	100K	
R14	1meg	
R15	220Ω	
R16	100Ω	
R17	47K	
R18	15K	
R19	100K	
R20	150K	
R21	4.7meg	
R22	470K	
R23	150K	

ITEM No.	RATING	REMARKS
R24	470K	
R25	150Ω	
R26	2200Ω	
R27	820Ω	
R28	220Ω	
R29	1000Ω 5W	
R30	22Ω 1W	
R31	39Ω 1W	
R32	470K	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ZENITH PART No.	REPLACEMENT DATA
K1	Limiter Grid Filter	25mmf, 100K	105-42	Sprague PRC-11

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		ZENITH PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Coil	20-355						
L2	FM RF Coil	S-13871						
L3	FM Osc. Coil	S-15733						
L4	Loop Ant.	S-46544						
L5	AM Osc. Coil	S-43067						
L6	1st FM IF	95-1150	16-3487 *	16-3487 *	FM-251 ▲	1451 ▲		
L7	1st AM IF	95-1250						
L8A	2nd FM IF	95-1251						
B	2nd AM IF							
L9	3rd FM IF	95-1150	16-3487 *	16-3487 *	FM-251 ▲	1451 ▲		
L10	3rd AM IF	95-1102	16-6770 *	16-6770 *	BC-355 *	12-C6 *		
L11	Discriminator	95-1153						

* Use Adapter Plate.
▲ Enlarge Mtg. Holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2600Ω	3-4Ω	95-1668	24S53	A-3025	AU-605	A-3332	24S53	S-12X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	49-885	4A1	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	ZENITH PART No.	INTERNATIONAL PART No.	ITT PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.076A	212-23 ① 212-13 ②	① T100	① 1235AH	① 100A	③ SR200	① Selenium Type ② Alternate Part No. ③ Silicon Type

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M2	Tuning Cap.	22-3039	AM, 2 Gang (Ant. 7—403mmf, Osc. 9—134mmf)
M3	Switch	85-623	Band

CABINETS & CABINET PARTS

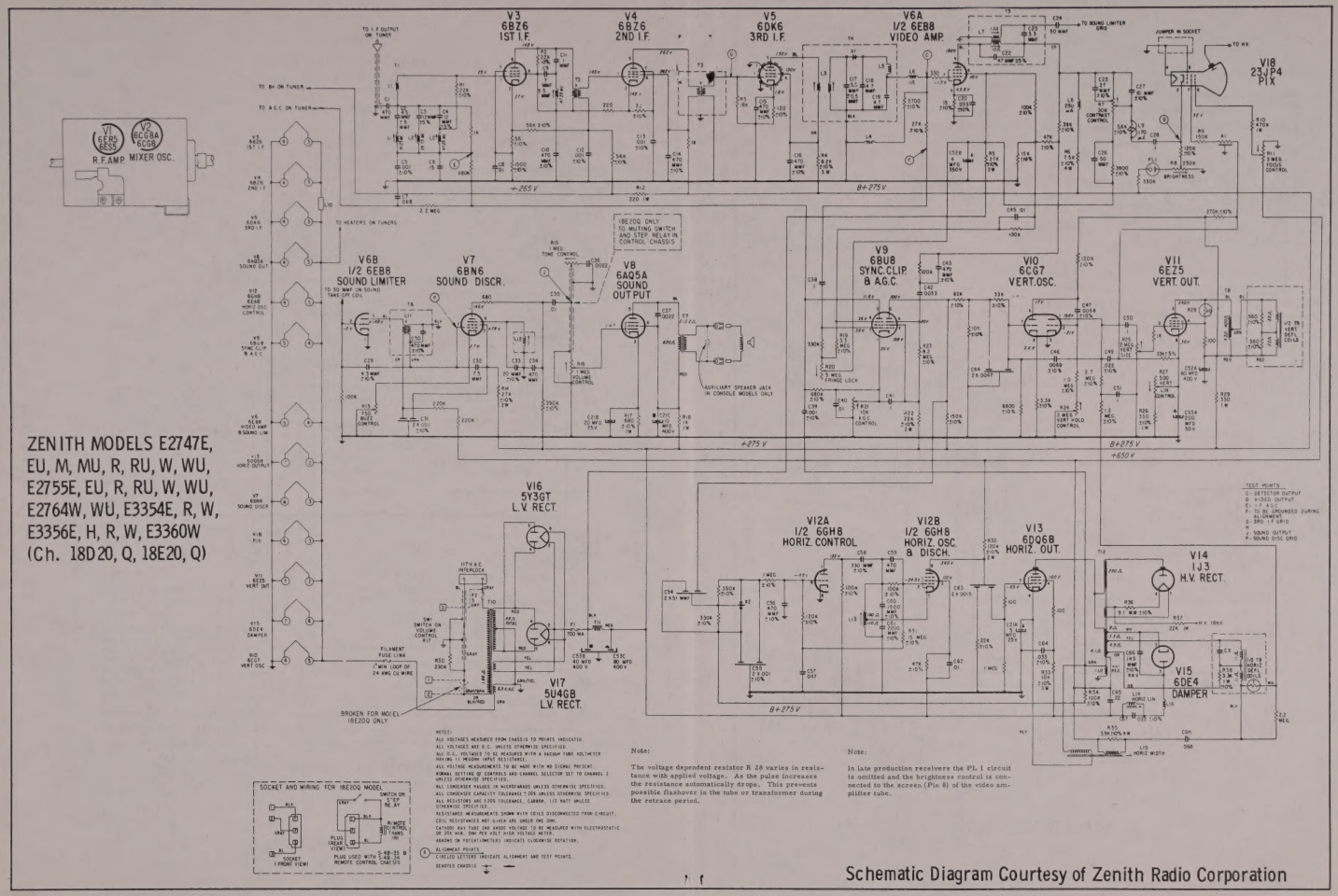
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	46-2100	Tuning
Knob	46-2083	Volume
Knob	46-2184	Band Switch
Dial Pointer	59-353	
Dial Scale	26-630	
Dial Crystal	192-277	
Cabinet	14-2675	Model C724L
Cabinet	14-2680	Model C724G
Cabinet	14-2681	Model C724P

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874


V3 6BZ6 1ST I.F.
V4 6BZ6 2ND I.F.
V5 6DK6 3RD I.F.
V6A 1/2 6EB8 VIDEO AMP.
V1 6ER5 6ES5 R.F.AMP.
V2 6CG8A 6CG8 MIXER OSC.
V18 23JP4 PIX
V6B 1/2 6EB8 SOUND LIMITER
V7 6BN6 SOUND DISCR.
V8 6AQ5A SOUND OUTPUT
V9 6BU8 SYNC.CLIP. & A.G.C.
V10 6CG7 VERT.OSC.
V11 6EZ5 VERT. OUT.
V16 5Y3GT L.V. RECT.
V17 5U4GB L.V. RECT.
V12A 1/2 6GH8 HORIZ. CONTROL
V12B 1/2 6GH8 HORIZ. OSC. & DISCH.
V13 6DQ6B HORIZ. OUT.
V14 1J3 H.V. RECT.
V15 6DE4 DAMPER
1BE20Q ONLY TO MUTING SWITCH AND STEP RELAY IN CONTROL CHASSIS
+265 V
B+275V
+275 V
B+275 V
+650 V
B+275 V
BROKEN FOR MODEL 1BE20Q ONLY
SOCKET AND WIRING FOR 1BE20Q MODEL
SOCKET (FRONT VIEW)
PLUG (REAR VIEW)
PLUG USED WITH 1-48-33 & 1-48-34 REMOTE CONTROL CHASSIS

ZENITH MODELS E2747E, EU, M, MU, R, RU, W, WU, E2755E, EU, R, RU, W, WU, E2764W, WU, E3354E, R, W, E3356E, H, R, W, E3360W (Ch. 18D20, Q, 18E20, Q)

Note:

The voltage dependent resistor R 28 varies in resistance with applied voltage. As the pulse increases the resistance automatically drops. This prevents possible flashover in the tube or transformer during the retrace period.

Note:

In late production receivers the PL-1 circuit is omitted and the brightness control is connected to the screen (Pin 8) of the video amplifier tube.

Schematic Diagram Courtesy of Zenith Radio Corporation

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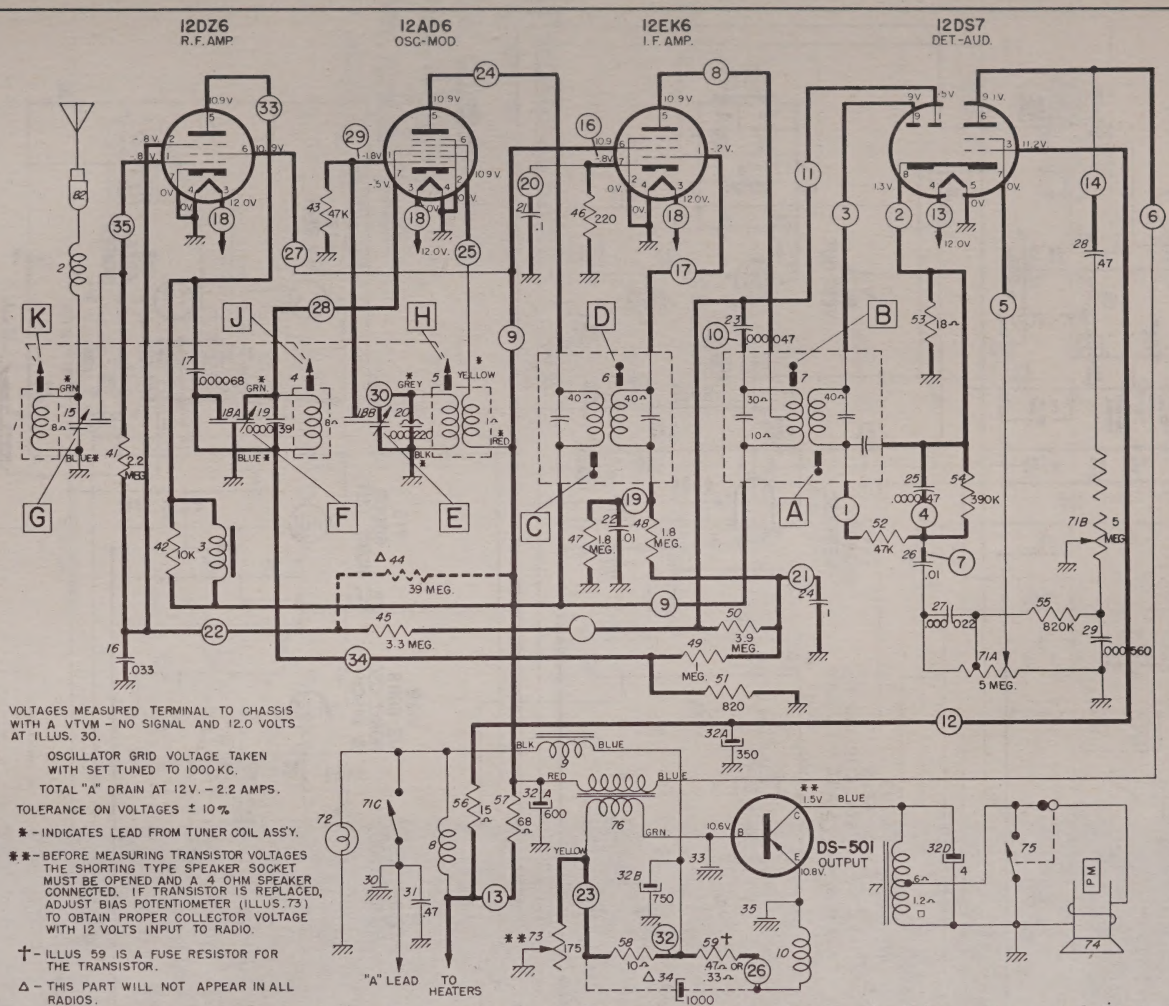


VOLTAGES MEASURED TERMINAL TO CHASSIS WITH A VTVM – NO SIGNAL AND 12.0 VOLTS AT ILLUS. 30.

OSCILLATOR GRID VOLTAGE TAKEN WITH SET TUNED TO 1000 KC.

TOTAL "A" DRAIN AT 12V. – 2.2 AMPS.

TOLERANCE ON VOLTAGES ± 10%

* – INDICATES LEAD FROM TUNER COIL ASS'Y.

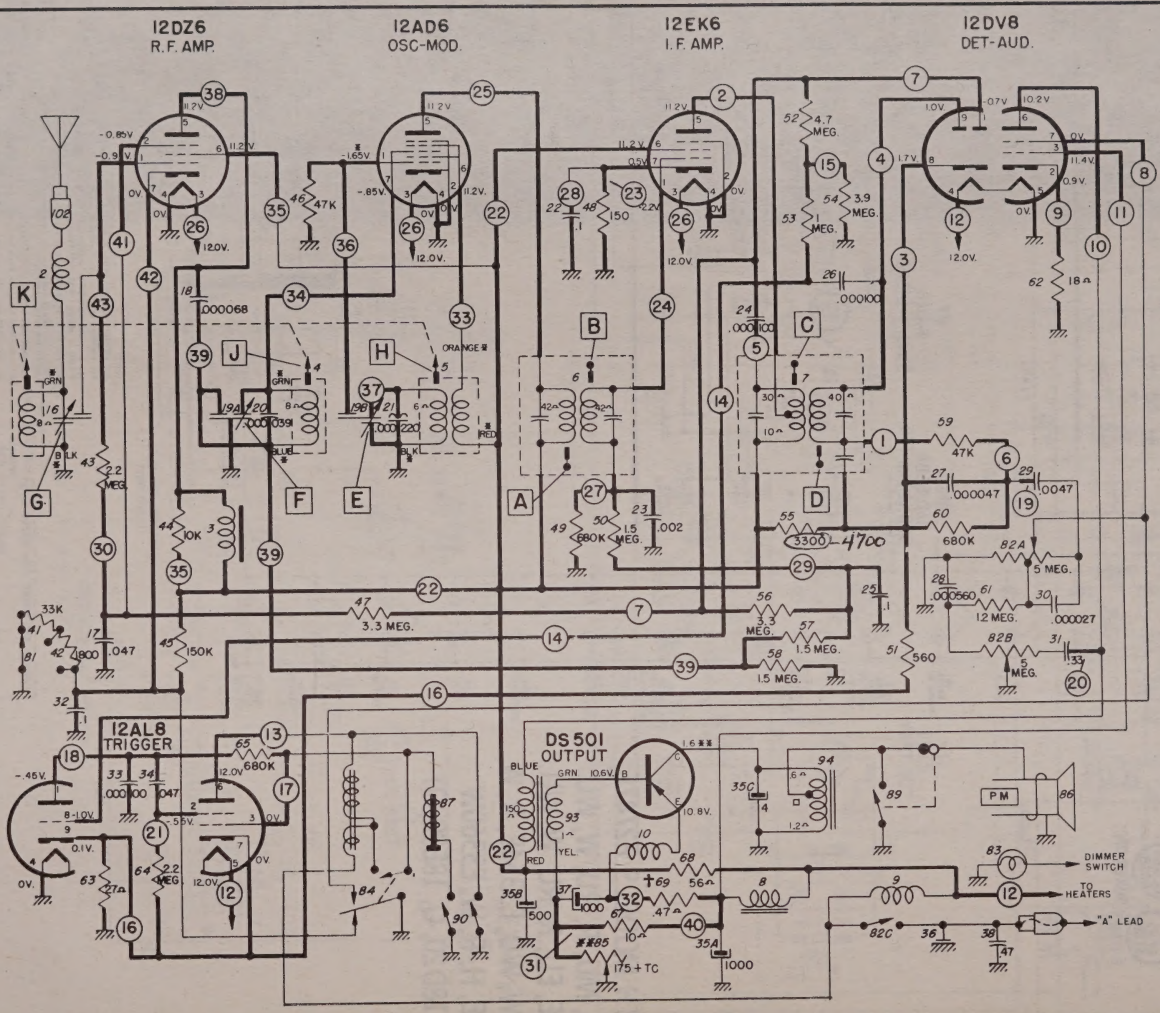
** – BEFORE MEASURING TRANSISTOR VOLTAGES THE SHORTING TYPE SPEAKER SOCKET MUST BE OPENED AND A 4 OHM SPEAKER CONNECTED. IF TRANSISTOR IS REPLACED, ADJUST BIAS POTENTIOMETER (ILLUS. 73) TO OBTAIN PROPER COLLECTOR VOLTAGE WITH 12 VOLTS INPUT TO RADIO.

† – ILLUS 59 IS A FUSE RESISTOR FOR THE TRANSISTOR.

Δ – THIS PART WILL NOT APPEAR IN ALL RADIOS.

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

PONTIAC MODEL 989615



IMPORTANT!

IF RADIO IS POWERED BY BATTERY ELIMINATOR, USE 16 VOLTS FOR PROPER SOLENOID ACTION.

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.